ENGINEERING NEWS-RECORD

E B POWER
UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH

Agile Oliver Hydro-Trencher digs 12-feet with ½-yd. bucket!

You can easily drive this compact, one-man trencher into spots where truck or crawler mounted units are helpless. Yet the Oliver 88WT is no small trencher. Its half-yard bucket digs to 12 feet and loads to 9½ feet. If you need more loading height, add the special hydraulic-trip loading bucket and dump at 12 feet.

The Hydro-Trencher has unmatched power and control for more profit in any digging. Two separate hydraulic circuits *keep* pressure on every move, even when you perform two operations at once. Dual controls provide speed and power variations for slicing through roots, rocky soil, hard clay, or delicately digging around pipes or foundations.

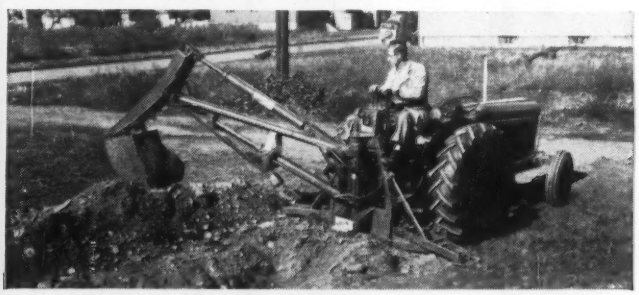
Wide bucket rotation permits fast dumping and high loading without spillage. Dirt or rocks can be clamped against the dipper stick and held at the highest level. Another thing—the trencher converts to a swing loader by simply turning the bucket around. The hydraulic stabilizer blade does two jobs, too. It holds the tractor level and steady, and doubles as a back-filler blade.

See this trencher in action. Test it yourself. Visit your Oliver Industrial Distributor. The 88WT Hydro-Trencher is available in either gas or diesel models. See it soon!

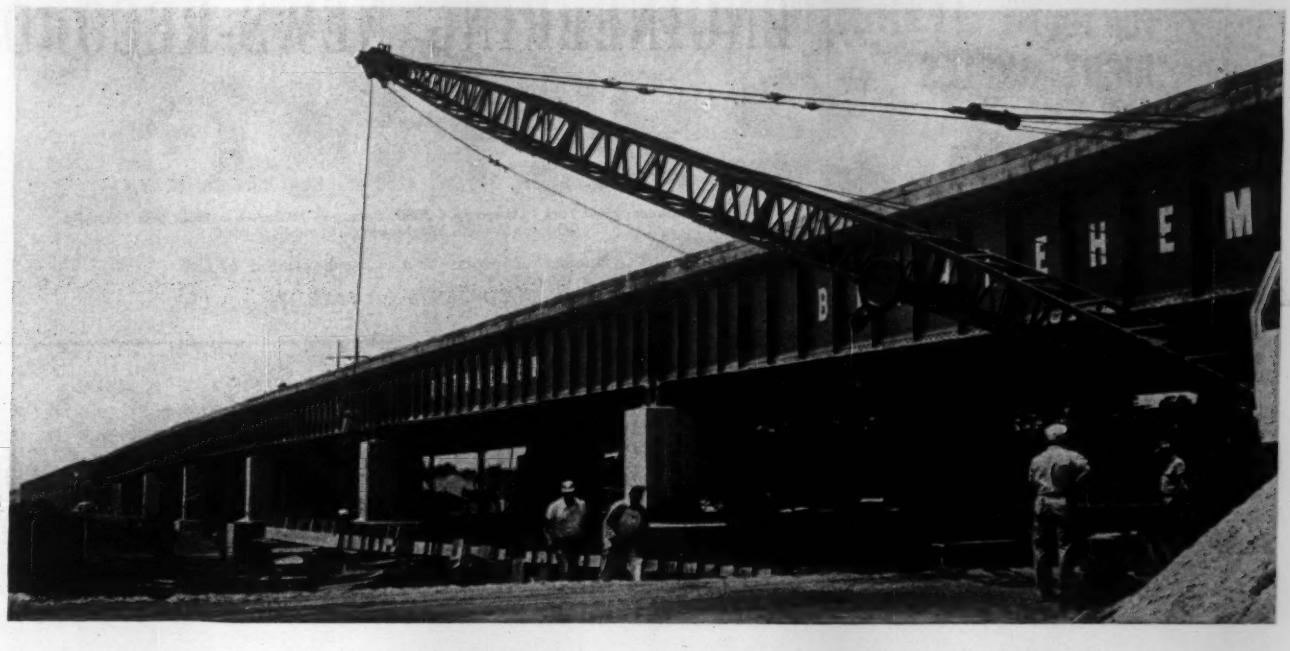
THE OLIVER CORPORATION
400 W. Madison Street, Chicago 6, Illinois

A complete line of industrial wheel and crawler tractors

This is the Oliver "OC-3" crawler with backhoe attachment. All-weather crawler traction makes the "OC-3" a handy unit for a multitude of trenching tasks. The "OC-3" takes bulldozers, front-end loaders and many other attachments, too.



Another Oliver handy for trenching is the multi-purpose Super 55. Built-in hydraulics on this tractor operate a variety of front-, side- and rear-mounted equipment. The Super 55 is available with gas or diesel engine.



Garden State Parkway nears completion

Vacationists by the millions will enjoy vastly improved motoring this summer thanks to the completion of New Jersey's widely heralded Garden State Parkway—the 165-mile twin highway linking Paramus, in Bergen County, with Cape May at the state's southern tip. Besides providing metropolitan area residents with intersection-free access to popular Jersey shore resorts, the parkway also serves as what has been termed an "almost perfect" military road.

Scores of steel bridges carry the twin roadways across rivers, railroads and highways, while many others handle tributary roads. Well over 100 such bridges, totalling about 28,000 tons of structural steel, were fabricated and erected by Bethlehem. These vary in size from a 4,400-ft-long high-level crossing of the Raritan River to simple beam spans. The 848-ft bridge shown above carries the parkway over the Bass River not far from Atlantic City.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Many of the parkway's bridges carry the lanes across railroad rights-of-way. This crossing is near Atlantic City.

Typical grade separation carries one of the twin roadways over an intersecting highway in southern New Jersey.

OPTICAL SQUARES THE "WATCH POCKET" TRANSITS

WILD Optical Squares, tiny surveying instruments containing pentagonal prisms, will do the complete job of laying out and checking buildings, concrete forms, ditches, pole lines, boundaries, etc., as well as cross sections and topo maps.

These handy tools actually fit your watch-pocket. They require no field adjustment and little or no practice for use.

Single Pentagonal Prisms $19.00
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Plumbing Rod (Optional) $26.25
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Robert F. Boger
Publisher

June 9, 1955 ENGINEERING NEWS-RECORD Vol. 154, No. 23

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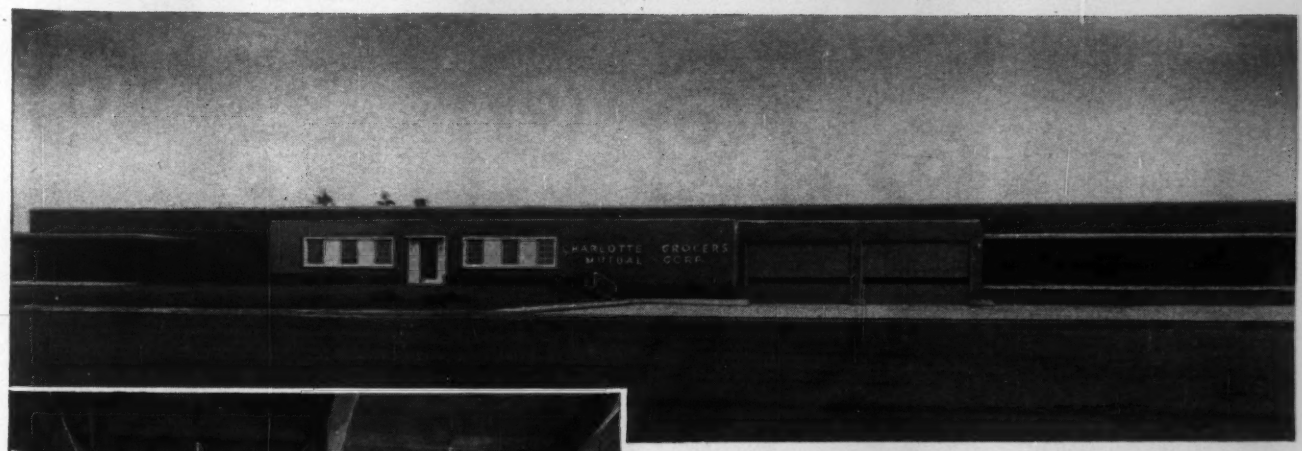
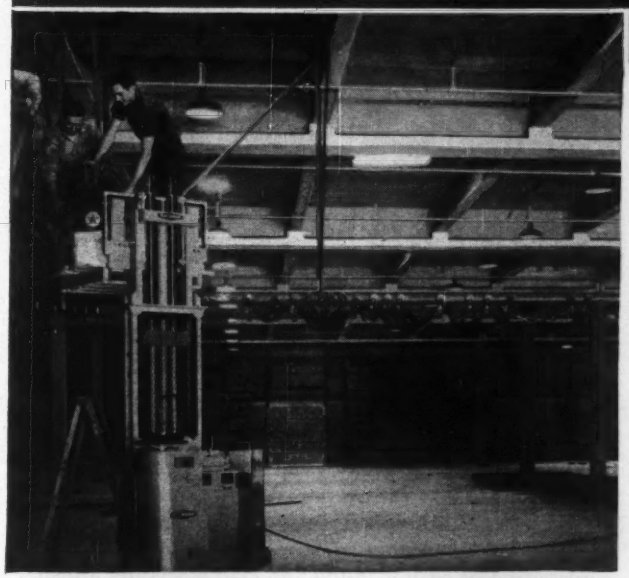
ERECTED COST OF PRESTRESSED CONCRETE MEMBERS...

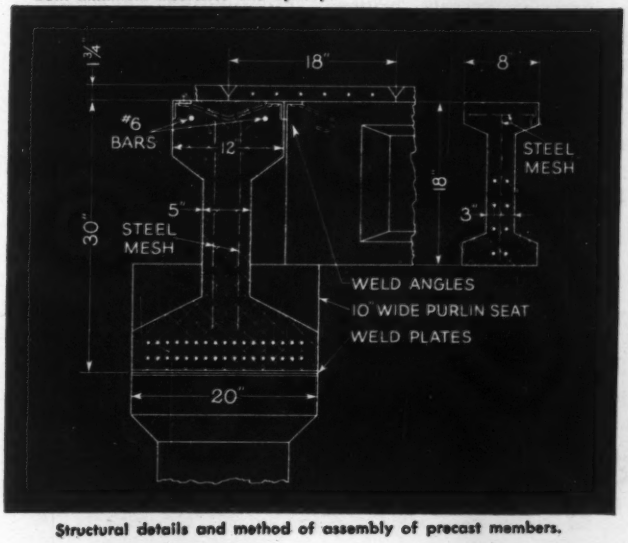
$1.10 PER SQ. FT.



Charlotte Grocers Mutual Warehouse. Area, 60,000 sq. ft. Prestressed concrete members made by Concrete Materials Inc.; Architect and Engineer, J. N. Pease and Co.; General Contractor, J. A. Jones Construction Co., all of Charlotte, N. C.



Specially designed for the material and method, lowest construction cost was achieved plus the fire resistance and durability that spell both minimum insurance and upkeep.



Structural details and method of assembly of precast members.

THAT'S THE GOOD NEWS about the new Charlotte Grocers Mutual Warehouse in Charlotte, N. C. . . . erected cost to the owner for precast columns plus precast prestressed girders, purlins and deck slabs was only $1.10 per sq. ft. And for the technically-minded, here are some of the data:

Live load—30 pounds per sq. ft.;
Tension elements—Roebling 7-wire stress relieved uncoated prestressed concrete strands;
30″ girders on 45′ span have thirty-four ¼″ strands;
18″ purlins on 24′ span have eight 5/16″ strands;
18″ x 1¾″ x 18′ deck slabs have six ¼″ strands and span 9′ c. to c. purlins;
Concrete—6000 psi ready-mix high-early;
Deck finish—grout joints between slabs.

Roebling engineers, leaders in the development of prestressing techniques and tensioning elements in America, will be glad to give you full information on tensioning materials and fabrication methods for this and other types of prestressed concrete structures. And they will always welcome the opportunity to cooperate with you to help assure maximum efficiency on any specific application of this economical and outstandingly modern structural material. Write Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING CF&I

Subsidiary of The Colorado Fuel and Iron Corporation

Which is the ECONOMY SIZE?

3 times stronger than carbon steel, Lukens "T-1" steel slashes equipment weight, reduces costs

The lighter weight, reduced thickness of Lukens "T-1" steel, in comparison to heavier, thicker plates of ordinary carbon steel, makes possible substantial over-all savings in material and fabrication costs for equipment builders. This new all-purpose steel—a unique, low-carbon, quenched and tempered alloy plate steel—has a yield strength three times greater than ordinary carbon steel. It can cut costs by reducing weight and still increase payload and efficiency.

Equipment fabrication is no problem with Lukens "T-1" steel. It is readily welded without preheating or stress relieving; equipment can easily be fabricated, modified or repaired at the field site. Its exceptional toughness and resistance to wear and impact lowers maintenance costs and lengthens equipment life. Additional savings are possible where Lukens' range of steel plate sizes—including the widest and heaviest available anywhere—makes possible the use of wider sizes that require fewer welded seams.

Lukens "T-1" steel is the most recent addition to Lukens' complete line of carbon, alloy and clad steels. Its unusual combination of properties suit it especially to application in pressure vessels, bridges, shipbuiliding, construction machinery and general industrial equipment. On problems of design, selection, application and fabricating techniques, Lukens offers full technical assistance. If you would like further information on Lukens "T-1" steel, write for Bulletin 765 on its properties, characteristics and applications. Address: Manager, Marketing Service, 774 Lukens Building, Lukens Steel Company, Coatesville, Pa.

LUKENS **"T-1" STEEL** THE NEWEST IN A COMPLETE LINE OF ALLOY STEELS

LUKENS STEEL COMPANY, COATESVILLE, PA.

B.F.Goodrich

All-Nylon All-Purpose tires roll 55,000 miles for building materials company

HIGHWAY, shopping center, housing development, industrial plant — all types of construction use concrete and a host of other materials from Hilltop Building Materials, Inc., of Cincinnati. 100 ready-mix trucks, 20 dump trucks and 6 flat bed trucks range over southwest Ohio highways, on rock and rut-choked roads, as often on no roads at all.

That's why Hilltop uses B. F. Goodrich *all-nylon* All-Purpose tires. The report: *all-nylon* All-Purpose tires can be recapped, give up to 55,000 miles of service.

All-Nylon body

Nylon is stronger than ordinary cord materials, withstands double the impact and resists heat blowouts and flex breaks. B. F. Goodrich *all-nylon* All-Purpose tire body outwears even the extra-thick tread—up to 67% deeper than that of a regular tire, can still be recapped over and over!

Put an end to unnecessary tire failures and costly maintenance. See your B. F. Goodrich retailer now and find out how *all-nylon* All-Purpose and other off-the-road tires can save you money. (Also available in lower-cost rayon construction.) Look under Tires in the Yellow Pages of your phone book or write *The B. F. Goodrich Co., Tire & Equipment Div., Akron 18, Ohio.*

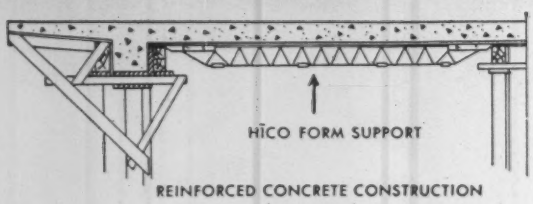
Specify B. F. Goodrich tires when ordering new equipment.

"ALL-PURPOSE TIRES give excellent traction and clean very well," says Hilltop Fleet Superintendent Edgar Pitzer.

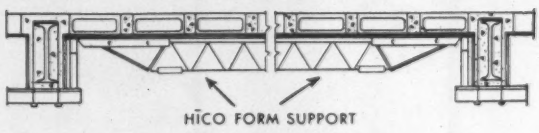
A 20-TON LOAD of concrete at a construction site. Hilltop gets a longer run-per-dollar from all-nylon tires.

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

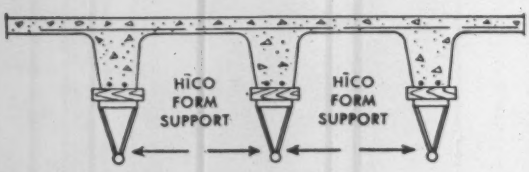
in hundreds of thousands of projects around the world



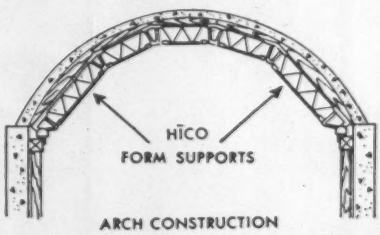
REINFORCED CONCRETE CONSTRUCTION



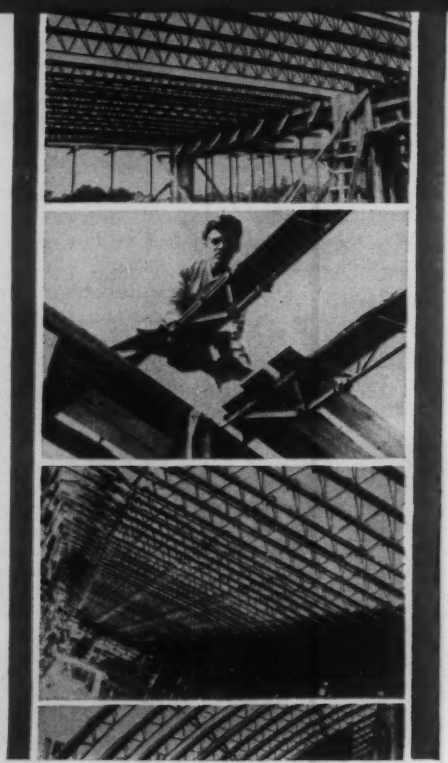
STRUCTURAL STEEL WITH PRECAST BLOCK



CONCRETE JOIST CONSTRUCTION



ARCH CONSTRUCTION



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The illustrations show various HICO installations in this country and abroad. If you would like to see films showing the actual erection and stripping of HICO supports, write or call Webrib Steel Corp.

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U.S. Patent No. 2,687,193
Other patents pending

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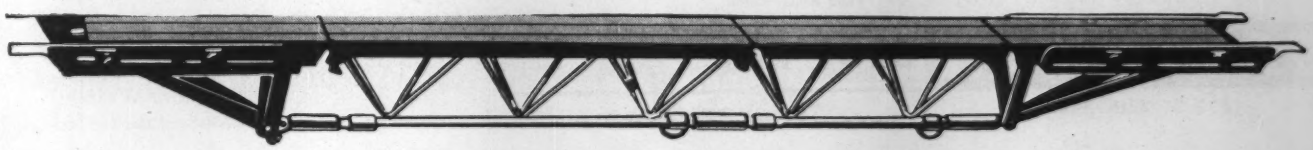
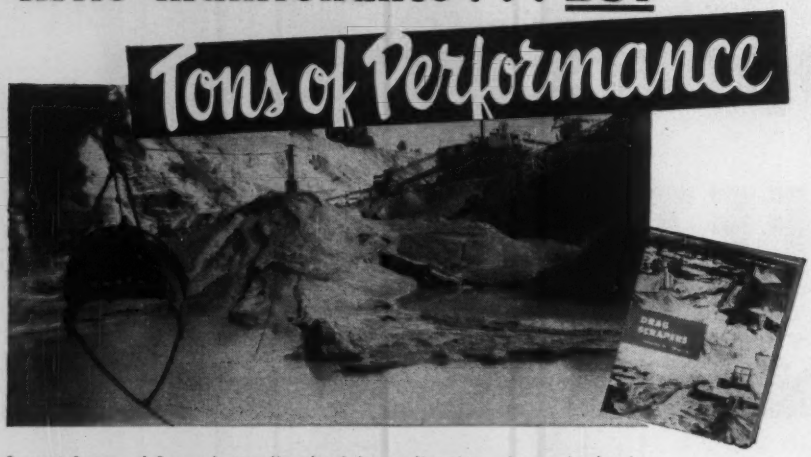


Moderate cost . . . light on labor
little maintenance . . . BUT



Crescent Scraper of 5-cu. yd. capacity—rigged for gravity return—shown returning to excavation point in the pit. Ask for Catalog A and Field Report 214.

SAUERMAN EQUIPMENT

Check digging power . . . rate of haul . . . clean dumping. Add labor economy . . . low upkeep . . . personnel safety . . . moderate power consumption. Total up the score . . . you'll choose one of these Sauerman Machines for your operation.

DRAG SCRAPER: *best* for pit or hill excavation, reclamation or general handling of materials, wet or dry. Serves as rapid, long range conveyor. Sizes 1/3 to 15 cu. yds.

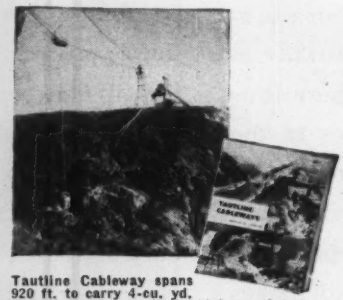
SLACKLINE CABLEWAY: *best* for deep digging — especially underwater — and conveying to a high delivery point. Reaches down a hundred feet or more . . . spans up to 1000 ft. . . . sizes 1/3 to 3½ cu. yds.

TAUTLINE CABLEWAY: *best* for long range aerial work. Lifts, conveys, places loads of unwieldy material. Ideal for dam construction or for conveying loads over streams and canyons.

CRESCENT SCRAPER ON BOOM MACHINE: *best* for increasing the work capacity of any boom machine on backfilling and grading jobs. When scraper is used with track cable and trolley, machine range is greatly extended.

Call on Sauerman's *experienced* engineers for the size and type system *best* suited to your digging, hauling or materials handling requirements. Write for catalogs . . . ask for idea-packed Sauerman News.

Slackline cableway performs difficult excavation of non-caving material from deep pit. 70% rock and 30% colloidal sand posed tough digging job. Ask for Catalog C and Field Report 216.



Tautline Cableway spans 920 ft. to carry 4-cu. yd. bucket of conrete from mixing point to dam site.

Crescent on boom machine dumps large load of wet peat. Bucket is gravity-returned on track cable to digging point. Ask for Catalog J-1 and Field Report 219.

SAUERMAN BROS. INC.
632 S. 28th Ave. BELLWOOD, ILL.

READER COMMENT

School Report in Favor

SIR: We certainly want to congratulate you on the thoroughness with which you covered school construction in the May 26 issue of ENR.

We think so much of the issue we would like to circulate copies of it within our organization.

EDWARD P. PEARSALL
Prat-Daniel Corp.
South Norwalk, Conn.

SIR: The school economy issue, which we have just received, exceeds expectations. It is a terrific job.

EGGERS & HIGGINS
Architects,
New York City

SIR: Please send when available 100 reprints school report section, May 26th issue.

H. E. BEYSTER & ASSOCIATES
Detroit, Michigan

SIR: I was very much interested in your . . . May 26th issue on school construction. May I have 150 reprints of these articles.

J. W. LOBDELL
Barber-Colman Co.
Rockford, Ill.

SIR: Please quote prices if you are reprinting your staff report on schools from issue of May 26th, for 100, 500 or 1,000 lots.

GEORGE MILLER, SECRETARY
Masonry Contractors Assn.
Chicago

SIR: We have reviewed the advance tear sheets you sent us on your May 26 ENGINEERING NEWS-RECORD report on schools. We have also made a preliminary review of the advance copy of the May 26 magazine (we believe you were going to send us an extra copy). Your total coverage on the school plant problem is extensive and should be of value to school officials, the public, and architects. Your handling of our data was excellent. I am somewhat amazed at the extent of your coverage in this short period of time. As may be expected, we are not in complete agreement with some of the points even though we do agree basically with most of your statements.

N. E. VILES
School Housing Section
U. S. Dept. of Health, Education and Welfare
Washington, D. C.

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General Sales Office — 274 Madison Ave., New York City

READER COMMENT

School Report—Against

SIR: I have just received your Staff Report on Schools edition of May 26th, and am writing this in the first flush of defeat.

You have been reached! The women's magazine and the architectural magazine editors have corrupted you, or, even worse, taken over. As a civil engineer and reader of your . . . magazine since my freshman year in college (too long ago to count off), I have always admired ENR for its preoccupation with terse, accurate, to-the-point reporting.

But this issue! Shades of the women's and "shelter" magazines. You have brought engineering and construction down to the level of baking a cake—"Do this to build your school," "don't do this . . .", etc., and all the other cute verbiage.

Please—let the women and non-engineers read their magazines. Keep this magazine for our profession, the way it was.

NORMAN KRUCHKOW
Urbahn Brayton & Burrows
Architects
New York City

[EDITORS' NOTE: For the information of readers who may be interested—ENR is now preparing several thousand reprints of the Staff Report on Schools, which should be ready for distribution within a few weeks. We'll be glad to supply as many requests as possible for copies, as soon as we can announce that the reprints are available.]

CALENDAR

Construction Industries Exposition and Home Show, Pan Pacific Auditorium, Los Angeles, Calif., June 9-19.

American Water Works Association, convention, Conrad Hilton Hotel, Chicago, June 12-17.

Sixth Hydraulics Conference of the Iowa Institute of Hydraulic Research, State University of Iowa, Iowa City, June 13-15.

American Society of Civil Engineers, Spring convention, Hotel Jefferson, St. Louis, June 14-17.

The American Institute of Architects, annual convention, Hotel Radisson, Minneapolis, Minn., June 20-24.

American Society for Engineering Education, annual meeting, Pennsylvania State University, State College, Pa., June 20-24.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 26-July 1.

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of new sewerage and drainage lines*

Lewis Goodell, City Engineer, and Jones, Henry & Schoonmaker, Consulting Engineers, had their eyes on *future,* as well as present costs when they designed new interceptor sewers for Lorain . . . Here's how their call for TYLOX-jointed, REXON-coated concrete pipe helped Lorain citizens get *more* for their waste disposal money . . .

FAST-WORKING TYLOX helped offset high construction costs with *more pipe down per day* . . . sped the project even further by eliminating "wet trench" delays . . . permitting *immediate* backfilling.

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Write for complete information and case histories on TYLOX RUBBER JOINTS and REXON Pipe Coating. See how these corrosion-prevention products assure taxpayers of "most for their money" on big *or* little sewerage and drainage jobs. And plan now to specify TYLOX Joints and REXON Coating on *your* next pipe project,

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13,048 ft. of Interceptor Sewers.

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ENGINEERS:
Lewis Goddell, Lorain City Engineer, and Jones Henry & Schoonmaker, Consulting Engineers, Toledo, Ohio.

CONTRACTOR:
Falbo Construction Company, Lorain, Ohio.

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Placing of Corruform precedes concrete placement in partly finished upper deck. Nearly 70,000 sq. ft. of time-saving Corruform sheets were welded to risers to form second-deck floors for the enlarged stadium.

K.C.'s First Big

COFAR,® ROOF DECK & CORRUFORM® Help K.C. Win 96-Day Race to Rebuild Baseball Stadium by Opening Day

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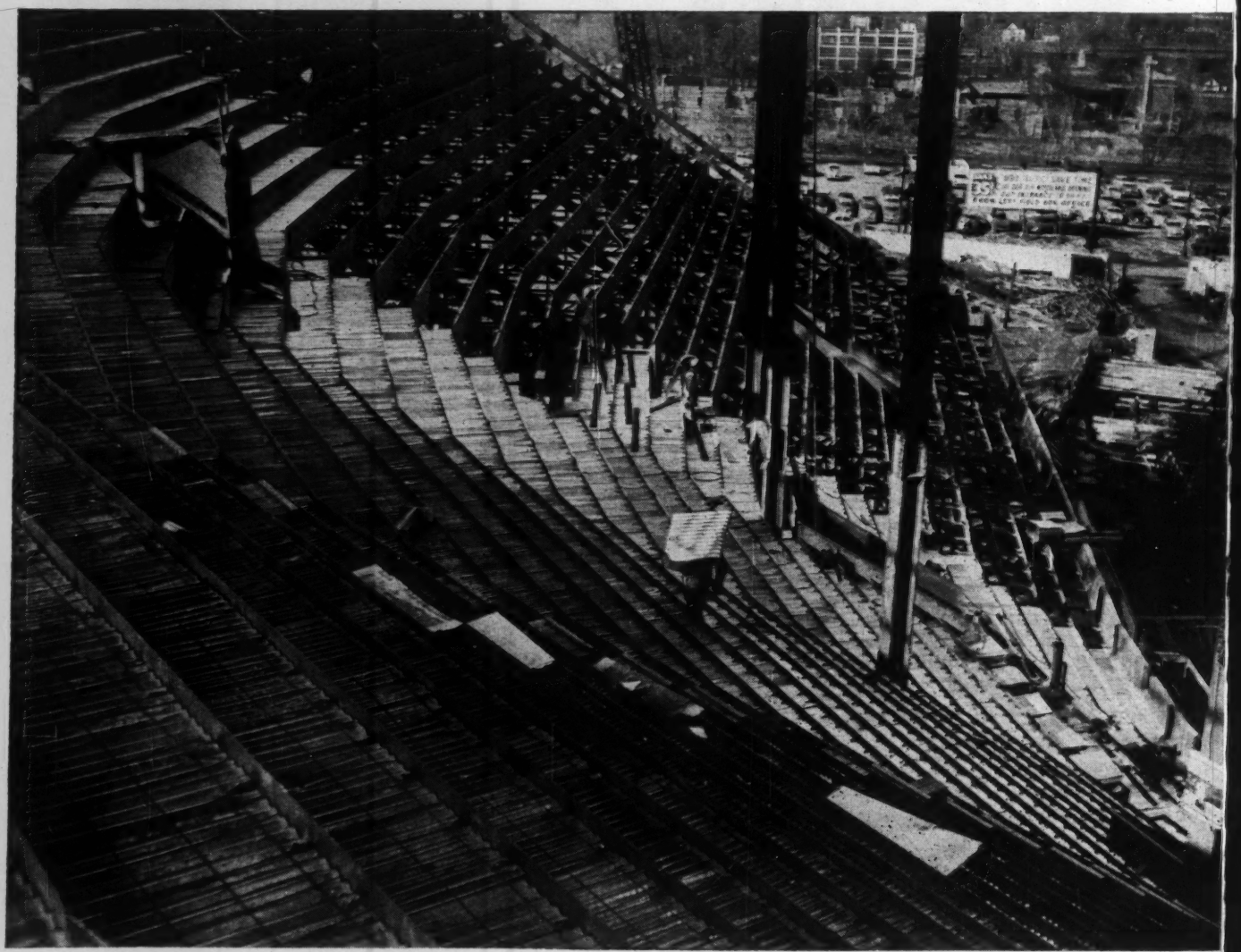
SOLUTION: CORRUFORM to form floors between risers . . . and on back walls of press boxes; ROOF DECK over office, concourse, press boxes, back-seat row in upper deck; COFAR on ramps and office and concourse floors.



League Win!

RESULT: "We had to guarantee the American League a stadium that meets Big League specifications and have it ready to play baseball April 12. Thanks to Cofar and Corruform, we will meet the deadline and stay within our budget as well."

J. L. Neville, *Project Engineer*

"Each hour was important on this job. We couldn't have done it without Cofar, Roof Deck and Corruform. They're perfect from every angle—speed of construction, strong working platform, economy. I've never seen construction go faster."

Arthur Row, *General Superintendent*

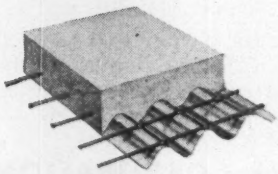
"Corruform, Roof Deck and Cofar are the finest products for this type project. Cofar saved a great deal of time and money by eliminating forms and stripping. Also, Cofar gave us clear working area below because we did not need temporary supports."

Fred Kuentz, *Project Manager*

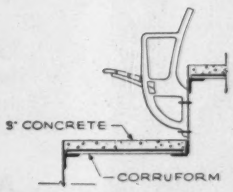
Cofar for Concourse Floors. Webb-Winn-Senter speeded the casting of concrete floors by using Cofar which acts as a deck for workmen, a form for wet concrete, and as reinforcing when the slab sets.

Corruform between Risers. The 100,000 psi steel made both concrete base and working platform, kept laying crews well ahead of concreting. Hot-dip galvanized Corruform was vinyl primed for painting.

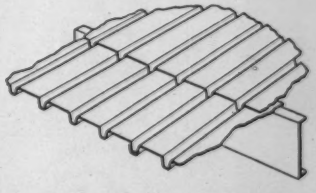
Granco Steel Roof Deck formed concourse roof and decorative curtain wall behind upper-deck rear seats. Wide sheets meant fewer laps, greater roof strength and safety, time saved in placing and welding.



Cofar is extra-strong, cold-reduced, hot-dip galvanized steel. It makes a tight form for wet concrete, provides full positive reinforcing. Welded transverse wires give full temperature reinforcing plus mechanical anchorage between concrete and steel.



Corruform forms tight, solid base for wet concrete, gives a definite concrete saving at no sacrifice to slab design. Corruform remains in place, eliminates the nearly impossible job of stripping. Mesh laid over high-tensile steel sheets reinforces slabs.



Granco Roof Deck is rotary-press formed steel with baked-on, rust-resistant alkyd finish. Each sheet is shaped for maximum strength and perfect nesting, covers 25 to 35 sq. ft. for fast placement, has 28¾" width to reduce laps to a minimum.

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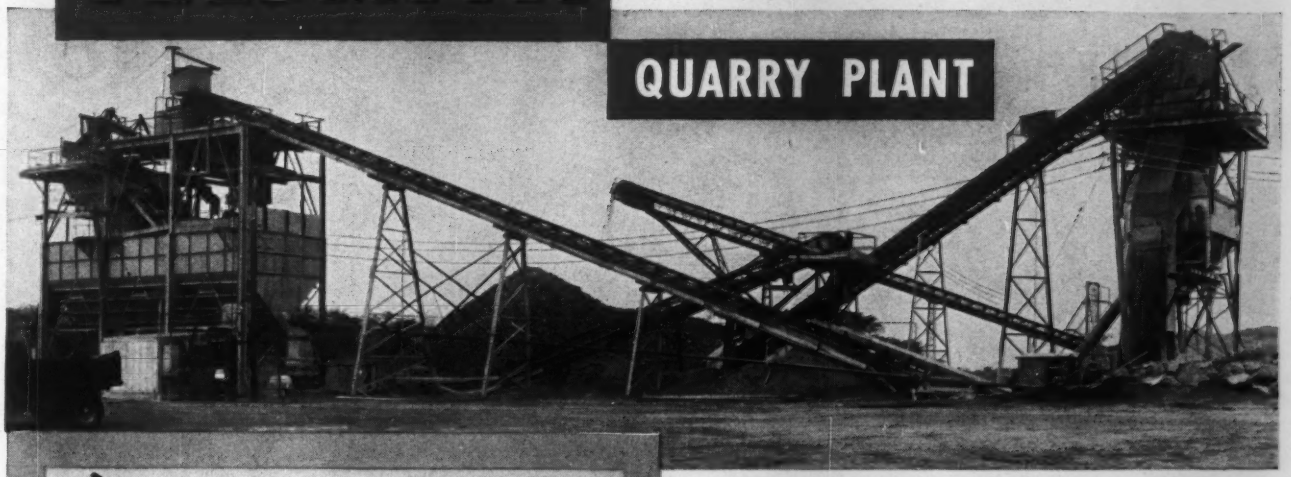

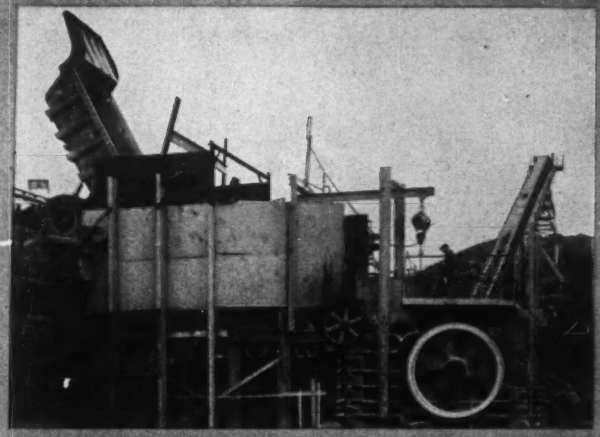

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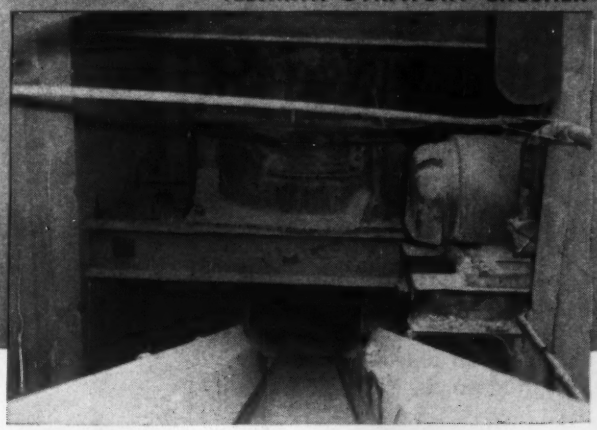

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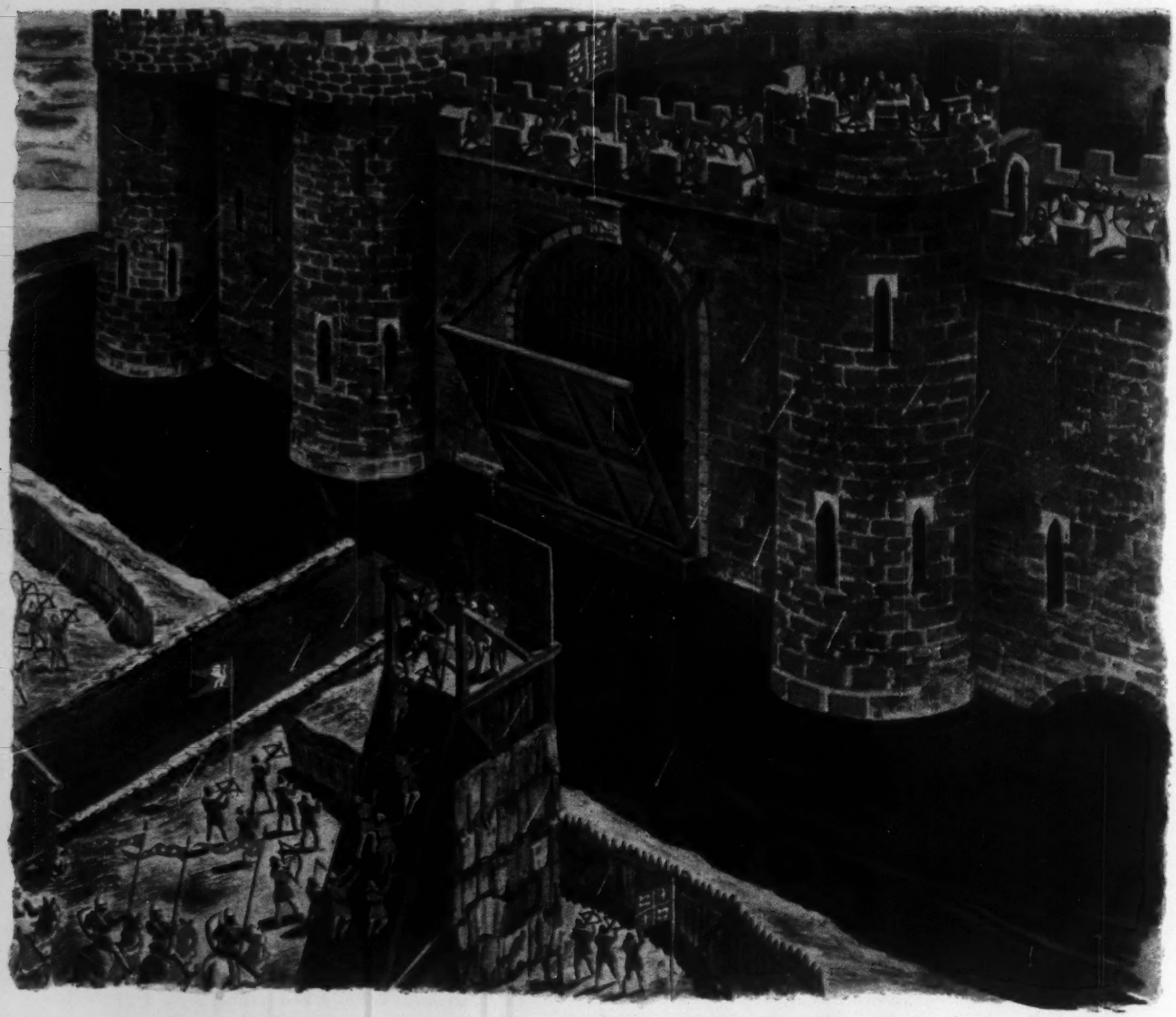

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THE CONSTRUCTION WEEK

FHA 'BLACKLISTING' UPHELD—A federal district court ruling has supported the Federal Housing Administration in its refusal to have further dealings with a Philadelphia construction firm, which figured in last year's Congressional investigation of "windfall" profits.

Harry K. Madway & Associates claimed they had been improperly "blacklisted" by the FHA and stood to lose a $10-million contract with the Philadelphia Redevelopment Authority. FHA defended its action in denying the firm a mortgage loan on the basis of its experience on earlier loans.

GRASS ROOT SUPPORT—Wasting no opportunity to support national organization policies at the local level, St. Louis Associated General Contractor members urged city officials to:

Revise contract letting practices and enact a new city building code—as preliminary to launching a $110.6-million construction program authorized by voters at a recent bond election (see page 24).

Said AGC: A performance-type code, such as that now under study by the city, would permit the city to take full advantage of newest materials and methods. Additionally, St. Louis should revise downward its present 10% retention on payment due contractors; and should let general contracts without separating sub-bids on mechanical specialties.

BARGAIN TOLL RATES WON'T DO—Residents of Florida's Lido Beach have been hoping that a $25 per year commutation ticket would represent enough of a toll to warrant construction of a new $4-million bridge connection with Sarasota on the mainland. But, even a $50 tag, plus other anticipated toll revenue, would not be enough, according to a report by the New York firm of Parsons, Brinckerhoff, Hall & Macdonald.

An estimated 3,374 buyers of a $25 tag, if paying a a proposed 15-cent per trip toll, would pay $130 a year. The $25 tag, plus 15-cent cash tolls, would net an estimated $128,000 annually. "With operating expenses estimated at $75,000 per year, the revenue would be sufficient to pay interest on a bond issue of only $1.3 million," the consulting engineers reported.

SCHOOL DISTRICTING—Connecticut legislators have completed action on bills providing for three types of school districts:

Metropolitan: Embracing a city of 50,000 or more together with communities within a radius of 15 miles.

Municipal: Taking in two or more towns. Governing board would include two members from each town; an extra member for communities of over 5,000.

Regional: First a committee of residents of interested communities would study feasibility of regional facilities. If a program is agreed upon, a regional board would buy or lease school buildings and determine proportionate share of indebtedness and expenditures.

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WASHINGTON OBSERVER

Federal aid for school construction is out for this year. There was some hope that the Supreme Court's decision might make it possible to vote funds—since district courts now must decide on segregation locally.

But Senate Republicans have given up on the Administration bill. They offered to work out a compromise with the Democrats, but issue of segregation still blocks the way.

Senators Hill of Alabama and Lehman of New York are both up for re-election next year. There is no way for these two senior Democrats on the Labor Committee to get together on the question of segregation. So bringing up school aid, they figure, can only give the Republicans campaign ammunition against them.

•

There is a row over a plan to make Home Loan Bank board an independent agency. The proposal is now part of the housing bill (see page 21).

Charge is that insiders can make substantial profits out of a procedure under wrhich savings and loan associations become converted to stock companies.

Chairman of Home Loan Bank board was quoted by Sen. Bush as the basis of his questions about the proposal. Bush put on the record remarks by Walter W. McAllister before California Savings and Loan League, in which he referred to the method of insiders making profits. Here's what he was talking about:

A savings and loan association builds up big reserves and directors then take steps to convert the co-op into a stock ownership company.

Those in the know then buy stock at $100 that's worth $300 or more.

This can be done with state-chartered associations in 11 states. But it can be done with federally-chartered associations in these states only if the HLBB approves conversion of an association to a state charter.

Fear is that if the board becomes an independent agency this conversion would become easier. Now, the board answers to Albert Cole, housing chief.

Bush and others say the proposal should be discussed in hearings which so far haven't touched on the subject.

•

House Democrats are organizing to get their own highway bill, despite Administration strength in the committee (p. 22).

House leaders want more money, especially for the Interstate System, than the Senate voted. But there's still doubt about Eisenhower's plan to create a separate corporation to float highway bonds. House leaders are working to hold Democrats in line behind a bill much like the Senate version—increased federal grants, perhaps with an increase in highway user taxes to help pay the way.

•

Congress has given approval to Interior's saline water research program. That's the program set up back in 1952 to discover cheap practical ways to remove salt and other minerals from brackish waters and sea water. Idea is to see whether fresh water can be made available at economic costs.

Congress has now extended the program through 1962 and this week is expected to authorize a total of $10-million to be spent during the 10 years 1952-1962.

Interior hopes to build 10 pilot plants at $100,000 to $400,000 each with new funds forthcoming. If costs of fresh water produced in these plants runs low enough, then local interest could take over and build full-size demonstration plants that would be capable of producing in the neighborhood of 75-million gallons per day.

Aluminum grating now only slightly higher than conventional steel gratings

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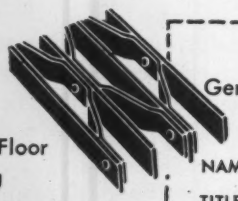

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Democrats in Congress Demand:

Federal Aid to Stimulate Still More Housing

Democrats in Congress are demanding a stepped-up federal program to stimulate housing construction. A report by the Senate Banking and Currency Committee calling for bigger federal outlays than President Eisenhower requested is the rallying point.

Democratic plans to increase federal aid for assuring construction range across a wide front, from bigger loans for home repair to more funds for urban renewal. The generally healthy state of construction plus Administration opposition on some points mean the proposals face a tough fight. But Democratic strategists are counting on new evidence that the housing boom is slowing down as fuel to fire up their drive over the next month or so.

Here are highlights of the housing act amendments as they were approved by the Banking and Currency Committee:

• **Repair and modernization**—Five year extension of the Federal Housing Administration program, as asked by President Eisenhower. The present authorization will expire July 1. The committee also recommended that the present ceiling of $2,500 on loans be raised to $3,000—something the President did not ask.

• **General mortgage insurance**—Addition of $4 billion to FHA mortgage insurance authorization. This is based on an expected $7.4 billion of mortgage insurance in the fiscal year beginning July 1; $3.4 billion of this sum is expected to come from retirement of existing mortgages.

• **Cooperative housing**—The committee approved $50 million for Federal National Mortgage Association to purchase co-op mortgages. It also wants to liberalize the language of the act; it would make "replacement cost" the determining factor in fixing the size of the mortgage, instead of "value" as required in the present law. The committee believes this change will markedly increase the number of co-op projects. It was not asked by the Administration.

• **Public housing**—Authorization for 35,000 units next fiscal year as requested by the Administration would be jumped to 135,000 if Congress accepts the committee's recommendation. This pace would be maintained until some 600,000 units have been built under the committee program. As usual, this will be the hottest of the housing issues. Even if 135,000 units a year is approved, the appropriation necessary to get the program started may be rejected, or sharply reduced.

• **Urban renewal**—$525 million of new capital grants for slum clearance was approved to cover anticipated projects to mid-1957.

• **Public facilities**—The committee wants to increase HHFA's financial assistance to municipalities for such projects as sewage and water systems. Out of 308 applications received last year, only seven have been processed, the committee reported. It wants to authorize HHFA to draw on the treasury for a $100-million revolving fund, with preference given applications from towns of less than 10,000 population.

• **Air pollution**—Loans by housing and Home Finance Agency to businesses for the purchase of equipment to reduce air pollution were approved—but only where the community has developed a workable program of its own. The purpose behind this is to help small businesses take part in abatement projects.

As a backdrop to these proposals, the committee went to some lengths to tell Congress that the construction boom still rests on a sound base.

In particular, it stressed the healthy housing situation, as seen by FHA and Top Administration economists. It quoted Dr. Arthur F. Burns, chairman of the President's Council of Economic Advisors, as saying: "In most areas finished houses are moving promptly into the hands of buyers . . . and prices and rents are fairly stable." It pointed out that FHA and the Veterans Administration have authority to slow down commitments in areas where over-building occurs—and that FHA has already done so in 18 communities.

The Federal Reserve Board, in a special study of the housing situation in its May "Bulletin," pinpoints veterans' mortgages as the greatest single cause of the rise in housing starts to the 1.4-million rate of the first quarter of 1955.

Units started under VA guaranty doubled compared to the comparable period in 1954. Easier terms sparked the jump. In March this year, 45% of VA mortgages were made with no down payments compared to less than 20% a year earlier and less than 10% in 1953. By this March, 46% of VA loans were for 30 years compared to 14% with 1954 and 2% in 1953.

Housing starts have already dropped to an annual rate of around 1.3 million. Administration economists would not be surprised to see a further decline. There are reports that down payments are being required in an increasing number of cases and that 25 years is the longest mortgage period currently being offered in some of the VA deals.

Officials believe marginal buyers will be increasingly discouraged by this tendency of credit terms to tighten, by a trend to higher interest rates and by the new VA rules shifting the cost of closings onto the buyer.

In addition, reports are reaching the Federal Reserve of a small increase in vacant units for rent. The Bureau of Labor Statistics says its cost of living index shows a small decline in rent payments—perhaps another indication that the recent rate of construction has outstripped demand.

However, Administration experts are convinced any dip in housing will be small—and will be readily absorbed by an expansion of other types of construction, such as industrial and commercial building. In short, they think the over-all construction boom will continue, no matter what happens to housing.

This interpretation does not satisfy the more ardent supporters of housing in Congress. They will attack any dip at all as a sign that the program offered by the Banking and Currency Committee is needed to bolster the economy. Their chances of winning don't look good right now. But, with one eye on the 1956 election, Democratic party leaders are certain to make a hard fight for their housing ideas.

Another Road Bill

House committee ends hearings, begins writing new highway legislation

The Administration's $101-billion highway plan gets its last chance in Congress this week when the House Public Works Committee begins writing a bill to provide more federal aid for highway construction.

The Senate dealt the Administration plan a sharp rebuff. It approved a rival bill sponsored by Sen. Albert Gore, Tennessee Democrat, that would provide $18 billion for highway construction spread over a five-year period.

In the House committee, the Administration road plan has some staunch backers. They are ready to wage an all-out fight for a 10-year highway building program financed by a bond issue, as the Administration bill provides.

• **Interstate system**—There is a good chance that the committee will write a bill that deals only with federal aid for the interstate highway system. Congress last year authorized aid for the primary secondary and urban systems which provides funds until July 1, 1957.

Several members of the committee have expressed doubt that the states can raise the required matching funds for a stepped-up program of construction on all federal aid systems. They point out that some states now are having difficulty matching on a 50-50 basis the federal aid funds provided in the law now in effect: $315 million annually for primary roads, $210 million for secondary or farm-to-market roads and an additional $175 million for urban roads.

Many congressmen believe the Congress should concentrate now on the interstate system and postpone action on other federal aid systems until the time comes to extend the law now in force.

Even if the committee drops everything but aid for the interstate system there still will be a fight over the method of financing. The heart of the Administration bill is its proposal to set up a government corporation for the purpose of selling bonds for highway construction.

The House committee wound up hearings last week. It has before it four bills that embody the Administration's approach to the roadbuilding problem. As yet, the House has no companion bill to the Senate-approved Gore bill.

Carlton S. Proctor, chairman of the Committee on a National Highway Program of the American Society of Civil Engineers, testified before the committee that the necessary materials, equipment and engineering skill are available for use in an expanded roadbuilding program. He urged that a 10-year program of roadbuilding be adopted.

Court Rejects Old Doctrine On Interstate Construction

The Supreme Court this week rejected use of the "new Construction" doctrine which has been followed by lower federal courts in applying the overtime and record-keeping provisions of the Fair Labor Standard Act to contractors.

Under the doctrine, courts have ruled contractors are not covered by the act on jobs done solely within one state on an extension of such interstate transportation routes as canals, railroads, and highways.

In a 6-2 decision, the court upset the doctrine in a case brought by the Dept. of Labor and ruled that work by C. W. Vollmer & Co., Inc., in constructing the Algiers Lock—a new unit in the Gulf Intracoastal Waterway running from Florida to the Mexican border—is "in commerce" and covered by the act.

The court's decision grants Secretary of Labor Mitchell's request—denied by lower federal courts—for an injunction to prevent the Vollmer company from violating the overtime and the records-keeping provision of the act.

Justice William O. Douglas, writing the majority opinion for the court, said the test is "whether the work is so directly and vitally related to the functioning of an instrumentality or facility of interstate commerce as to be, in practical effect, a part of it, rather than isolated, local activity."

Repair of interstate facilities—though done solely on an intrastate basis—have always been covered by the act. But the courts developed a theory that the act does not cover "new construction" not yet used or not an integral part of interstate commerce.

However, Justice Douglas termed the Algiers Lock job as "work improving existing facilities of interstate commerce," and as such, in the same category as repair work. He pointed out that the Gulf Intracoastal Waterway is an existing instrumental of commerce, which has proved inadequate to handle the congestion of traffic where is crosses the Mississippi River. Construction of Algiers Lock is designed to relieve this congestion.

Florida Adopts Road Department Reforms

A bill aimed at lessening the effect of politics on the State Road Department and the finalizing of ambitious toll road programs highlighted action in the regular session of the Florida legislature.

The highway department reorganization measure provides for a merit system, employment of an executive director and re-codification of all road laws and regulations.

The State Turnpike Authority was given the green light to proceed with its $281 million, state-long toll road. Bonds for the $74 million Hollywood-Fort Pierce section were to go on sale this week.

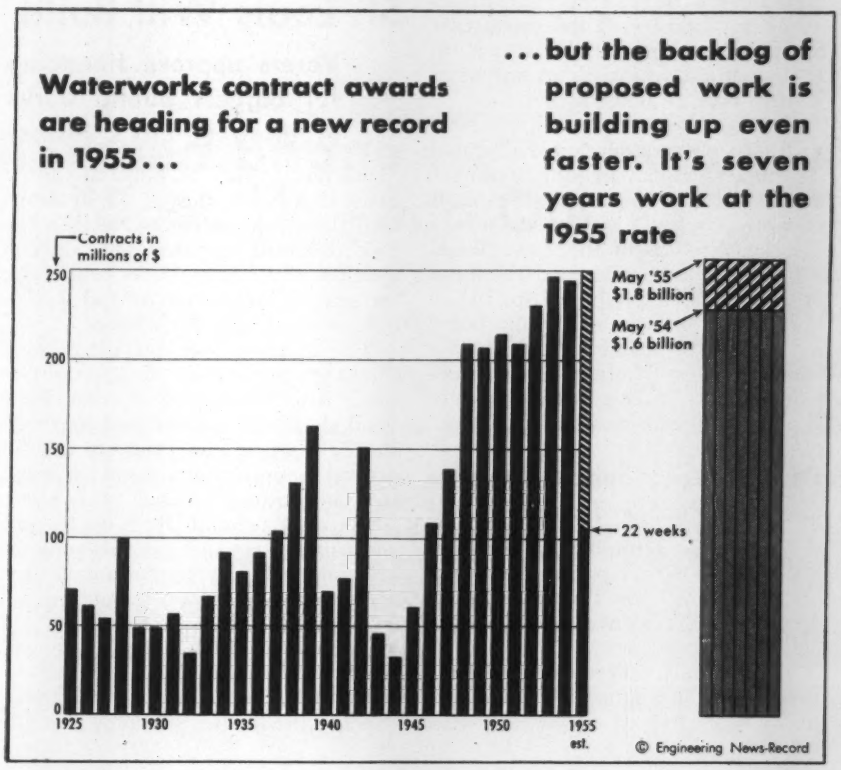
In order to expedite Jacksonville's current expressway construction, the legislature provided for a Jacksonville Expressway Authority to re-finance the project, which is now estimated to cost $69 million instead of the original $60-million figure.

The agency is empowered to refund a $28 million bond issue and to put out a new issue of $51 million. To this amount, the State Road Department will add $12 million over the next three or four years, in addition to $6 million it already has put into the project. The new bond issue will be backed by tolls from the completed Mathews and Warren bridges over the St. Johns River and by Duval County's share of state gas taxes.

The legislature set the stage for a number of other public improvements in Jacksonville. One bill authorizes extension of sewers for three miles outside the city limits as part of a long-range $150 million program based on a study by Metcalfe & Eddy. The city is empowered to float bonds, subject to referendum approval, for the initial work. Another bill authorizes bond issues, to be backed by city sales and utility taxes, for construction of a new city hall, civic auditorium and sports arena.

More than $19 million in direct appropriations were provided for state institutional building, including $8.6 million to be used for a teaching hospital for the University of Florida medical school.

In an attempt to spur further settlement of industry in the state, the legislature set up the Florida Development Commission by consolidating the State Improvement Commission and the State Advertising Department. The new agency will tie in with a Florida Credit Corporation which has been set up to make loans to new or existing industries which find themselves unable to meet their needs through normal credit channels.



Waterworks: New High is Not Enough

With the four-way push of private housing, public housing, industrial and public building construction behind it, demand for water supply facilities has pushed construction spending in this field to a record level, a survey indicated this week.

According to reports to ENGINEERING NEWS-RECORD, construction spending for water supplies has already passed the all-time high set in 1953. In the first 22 weeks of 1955, contract awards totaled $105.4 million compared with $104.9 million in the same period two years ago. But shortages are appearing, nevertheless.

An analysis of the reports indicates that construction men are facing the brightest future on record in the water supply field—without any prospect appearing yet of satisfying the demand.

• **Pushers**—The popular inclination to lay the lion's share of credit for the increasing demand to mushrooming housing construction is correct, but ENR's figures make it clear that other factors have a great part.

Probably the most important of these is industrial construction. Manufacturing industries are making an increasing demand for process water as well as water for normal building services. Even though industrial building, so far in 1955, hasn't caught up to the record pace of 1951-53, it is moving at an impressive rate. For the first 22 weeks of 1955, a total of $1,056 million in contracts had been awarded for this category.

Public housing is being pushed upwards at an impressive rate. For the 1955 period, contract awards in this field was $121 million. Construction of public buildings, excluding housing, continues at $685 million, about the same rate as that of the post-war high period in 1954.

• **Other factors**—Coupled with these gains are other factors of major import to the waterworks construction field.

Chief among them is growing evidence of water shortages in many older industrial and residential areas. The central and southeastern sections of the United States still face critical water shortages, despite ambitious programs already planned or under way; the Southwest is barely keeping ahead of its immediate needs and is making little headway toward assuring surplus supplies for emergencies. New York City, having solved its own water problems by tapping the Delaware River near its source, nevertheless lies in the center of an area that is threatened with strict rationing.

The second factor—and perhaps most important from the viewpoint of builders and public officials—is that as construction costs continue to rise, less water plant is available for the same money. That's an important factor in considering the rise in expenditures so far in 1955.

Federal funds appropriated between 1944 and 1949 for advance planning of nonfederal public works projects included 326 water facilities for which plans are completed but construction had not started by Jan. 1, 1955. These projects originally were estimated to cost $60 million, but today the cost estimate has risen to nearly $97 million.

• **Backlog is rising**—The waterworks backlog has risen rapidly this year. ENR figures show new waterworks projects estimated to cost a total of $230 million were proposed during the first five months of this year. That is nearly double the value of jobs proposed in the first five months of last year, and it tops the 1950 five-month record of $216 million.

Jobs proposed during May hit the highest dollar total for any month on record. A $70-million project for the Denver Water Commission—construction of two reservoirs, a filtration plant and a tunnel through the Continental Divide—helped boost the May total to $91.4 million.

• **Contract awards**—Water projects for which construction contracts have been awarded recently include the $4.5-million Little Falls Dam pumping station in Washington, D. C.; the $8-million Hammonasett Reservoir and tunnel in New Haven, Conn.; the $3-million Southampton Dam, Southampton, Mass.; and the $33-million Donnels and Beardsley Dam for Oakdale, Calif.

Advertised for bids is the $15-million Chicago and Willson Ave. water tunnels in Chicago, Ill. A $50-million filtration plant is proposed for Detroit, Mich.

Sewage Plant Must Close Because It Makes Odors

A Kentucky circuit court ruled last week that the Kenton-Campbell Sanitation District must discharge raw sewage into the Ohio River until it can operate its $8-million sewage treatment plant without "noxious and nauseous stenches."

The court ruled on an injunction suit filed by residents of Bromley, Ky., where the plant is located. Sewage from 19 Kentucky cities had been treated at the plant.

The court order placed the sanitation district in an awkward position. It must meet weekly payrolls and pay interest and principal on $8 million of bonds whether or not the plant operates. Water consumers pay an average of $25 a year, but are objecting to this charge while the plant stands idle.

Material Shortages

Cement supply situation worsens; some areas now have allocation systems

Cement shortages have begun to plague the booming construction industry even before it gets into its summer stride.

At several places in the Midwest, informal rationing systems have been set up by suppliers. This is most prevalent thus far in Indiana, where a toll road and an Air Force base project have put an unusually heavy drain on the state's normal supply sources.

Dallas and San Antonio have an acute shortage, and a cement black market has been reported in Dallas. Some cement now is coming into Texas from Mexico.

A Cleveland dealer reports he is cutting allotments to builders as much as 40%. And Canadian cement is selling in Cleveland for $1.50 per bag as compared to the normal price of $1.15.

A Springfield, Ohio, homebuilder last week said he purchased a shipload of cement from a German firm, paying around $300,000 for 7,500 tons, including transportation costs. This is about twice the amount of cement his firm requires so the remainder will be sold to other contractors.

Chicago contractors last week saw an acute shortage in the offing as buyers were attempting to get delivery from distant points. And Los Angeles was moving into a similarly tight situation.

Although not yet hurting, contractors in the Middle Atlantic states and in Connecticut, Massachusetts and Maryland are certain that they will face a bad supply problem before long.

• **Production way up**—Cement plants actually are producing at an all-time high level. Trouble right now is that better-than-usual construction weather last winter and the record-breaking volume of contract awards in the past five months have depleted the stocks normally available at the beginning of a construction season.

Shipments of portland cement from the mills actually jumped 64% in March to 22,604,000 bbl, setting a new record for the month and topping March, 1954, by 21%. And for the first three months of this year, shipments reached an all-time high of nearly 50,000,000 bbl. This is 10% ahead of the first quarter of last year and 2.4% ahead of the record first quarter of 1953.

A new monthly production figure was set in March with an output of 22,409,000 bbl, representing operations at 90% of the total rated capacity of the industry. Total production for the first quarter of this year is up 10% over last year, with an output of slightly over 60,000,000 bbl.

• **Other shortages develop**—Fabricated structural steel may be joining cement in the "critical shortages" column if bookings continue at the rate of the first four months of this year. Bookings during this period ran 10% ahead of shipments (ENR June 2, p. 24).

A critical shortage of gypsum board is giving homebuilders plenty of trouble in many sections of the country. Some mills have had to resort to allocations to ease pressure of demand.

Ohio to Limit Subcontracts On Any Future Turnpikes

The Ohio Turnpike Commission plans to insist that prime contractors on any future Ohio turnpike projects do a definite percentage of the work with their own forces.

The commission's engineers blame the "broker" operations of some contractors for much of the current work lag on the 241-mi east-west turnpike across the northern part of the state. A spokesman said some contractors had parceled out so many subcontracts that it was almost impossible to coordinate operations.

"We have learned a lesson," commission chairman James W. Shocknessy said. "We are going to insist in the future that all contractors do a definite percentage of the work themselves. Too many of them are acting as brokers, permitting subcontractors to do the job."

The commission recently announced that several sections of the $325-million, east-west turnpike were behind schedule. Turnpike engineers have met with contractors to attempt to speed up work. The schedule calls for the turnpike to be completed along its entire length and opened to traffic on October 1.

Iroquois Dam Bids

The Power Authority of the State of New York received four bids for construction of Iroquois Dam on the St. Lawrence River.

Peter Kiewit Sons Co., Omaha, Neb., Arthur A. Johnson, Brooklyn, N. Y., and Al Johnson Co., Minneapolis, Minn., was low at $14 million on an alternate calling for a steel sheet-pile cellular cofferdam.

A joint venture of J. A. Jones Construction Co., Charlotte, N. C., and Charles H. Thompkins Co., Washington, D. C., was low at $18 million on the regular bid under specifications calling for timber-crib cofferdam.

St. Louis Will Build

Voters approve financing for biggest public works program in city's history

St. Louis, Mo., is preparing for a quick start on the biggest public works construction program in the city's history following approval at a special election of a $111-million bond issue for general improvements and a $16-million bond issue for schools.

The election was preceded by a campaign on the issue "Progress or Decay." A record number of voters for a bond election responded and approved the 23 construction programs in the general improvements bond issue by large majorities.

Mayor Raymond R. Tucker said construction could begin this summer on some of the improvements for which plans have been completed.

• **Expressways**—The general improvements program included $18 million to pay the city's 50% share of right-of-way costs for the St. Louis portions of the Mark Twain, Daniel Boone and Ozark Expressways. Remaining rights-of-way costs and all construction costs will be borne by the state and federal governments.

The program also included $12 million for street improvements, $11 million for parks and playgrounds, $11 million for improving MacArthur Bridge across the Mississippi River and for various railway viaduct and underpass projects, $8 million for hospitals and health centers, $6 million for street lighting, $8 million for flood protection, $4 million for neighborhood rehabilitation and $5 million for penal institutions.

A $10-million revolving fund also will be set aside to be used for the city's one-third share of the cost of acquiring slum property, clearing the land and reselling it to private developers in eight areas slated for urban redevelopment programs. A total of $350 million of private capital is expected to be invested in these urban redevelopment programs.

• **Schools**—The $16-million school bond issue included funds for construction of three 24-room elementary schools, ten 8-room schools, a $1.5-million combined auditorium, gymnasium and field house, and a variety of other projects.

Superintendent of instruction Philip J. Hickey said work on some of the bond issue school projects probably will be started by fall. He said sites for two of the 24-room schools are already available and bids probably will be called by the end of the year.

Railroad Bridge Goes Up—and Out

SIDE BY SIDE—When construction of the last segment of Pittsburgh's Penn-Lincoln Parkway (ENR Nov. 12, 1953, p. 54) necessitated moving eight sets of Baltimore & Ohio Railroad tracks from the bank of the Monongahela River, a problem had to be solved, B & O's tracks had to go under approaches to a Pennsylvania Railroad bridge; columns on the PRR bridge were in the way; and PRR bridge traffic couldn't be interrupted for more than a few hours. Answer: A $600,000 section with adequate span, to be moved into place within two hours. New section, on jacks and rollers, is ready (above) to move.

UP AND AWAY—Workmen for Eichleay Corp., Pittsburgh, jack up old section of bridge, using 58 heavy ball-bearing jacks, until weight is off old columns, which are then cut away.

READY TO ROLL—With old section now free of ties to bridge and ground and new section already on rollers, workers complete adjustment of steel pins that served as rollers. New section, pulled against old by 2-in. cables from three double-drum hoists, moved old section out of line.

OPEN FOR TRAFFIC—New section, pulled into exact position, has been lowered into previously-prepared pin plates and is bolted in place. Delay to traffic: less than expected. The job was completed an hour ahead of schedule. Old section will be dismantled as scrap.

No Expressway for Hartford

Numerous surveys and 10 years of discussion fail to bring agreement on route for highway to solve traffic problem

After almost exactly 10 years of proposals and counter-proposals, a decision seems to have been reached on an expressway to connect Hartford, Conn., with its biggest bedroom suburb, West Hartford.

The expressway won't be built for at least another two years—if it's ever built at all. No mention of the limited-access road was included in the list of highway projects planned by the State Highway Department for the coming biennium in its request for an appropriation of $114 million.

Thus, at least a temporary end has been written to a project that has been the subject of at least four studies by outside engineering firms, three or four by state and municipal engineering organizations and numerous others by citizens' groups; and that has involved six governors, two highway commissioners and most of the prominent citizens of the two Connecticut cities.

• **Problem**—The proposal and the reasons for it were simple enough to gain quick popular support. The city of Hartford comprises an area of 18.6 sq mi of which 2.4 sq mi are accounted for by the Connecticut River and its adjoining dikes which form the eastern boundary of the city. It is adjoined in an almost unbroken line of settlement by West Hartford. In this compact area, Hartford derives something like 85% of its city revenues from property taxes levied within the central industrial area. West Hartford, largely residential, derives its tax income from home properties.

The problem that has vexed traffic engineers and police of both cities is the congestion caused by automobile commuters whose vehicles choke inadequate street facilities.

The solution seemed simple enough to William H. Putnam, then chairman of the Hartford Flood Control Commission. In May, 1945, he said an interurban highway cutting generally south of Bushnell Park and the state capitol would be the answer.

Putnam did not release any detailed plan, but, within 24 hours of his statement, William J. Cox, then State Highway Commissioner, did.

Cox said he agreed with Putnam's idea, but not with the route. The route, he insisted, should be north of the park, following the general route of the New Haven railroad tracks. The Flood Control Commission finally released some months later a detailed map showing Putnam's plan.

Nothing much happened until 1947 when the city of Hartford's planning commission released its own plan. This plan followed Cox's suggestions generally but included spurs around both sides of Bushnell Park and a tunnel under part of it. This brought an attack from civic interests who didn't want the park tunneled.

• **Action brings reaction**—G. Albert Hill, who succeeded Cox as highway commissioner, announced in August 1948 that the longest section of the proposed expressway had been decided upon—the 4.6-mi section between Broad Street and West Hartford.

Immediately, strong economic forces weighed in with new objections: Aetna Life Insurance Co. recommended that the whole highway proposition be reviewed—for the line of the highway now would pass across the rear of the company's property. And one of the city's large manufacturing companies warned bluntly that it would be forced to quit the city entirely—a possible tax loss of more than $183,000 a year.

And Robert I. Catlin, chairman of the State Highway Safety Commission, said the Hill-proposed route would create traffic hazards.

• **And still more**—More and more groups began to get into the act.

In the fall of 1948, Hartford and West Hartford appointed a committee to work on a different route.

In the same period, five Hartford business firms retained outside consulting engineers to propose a route.

The resulting reports reviewed previous work, disagreed on best answers.

Then, in 1950, Hartford City Engineer H. I. Skilton presented a new plan for the interurban expressway. He said his plan would result in less tax loss to the city, lower construction costs.

• **Bridge complications**—Early in 1952, a further complication appeared: A proposal for a third bridge across the Connecticut River to bring traffic directly into Hartford's State Street, between the existing Charter Oak and Bulkley Bridges. State Street is the heart of the city's business district.

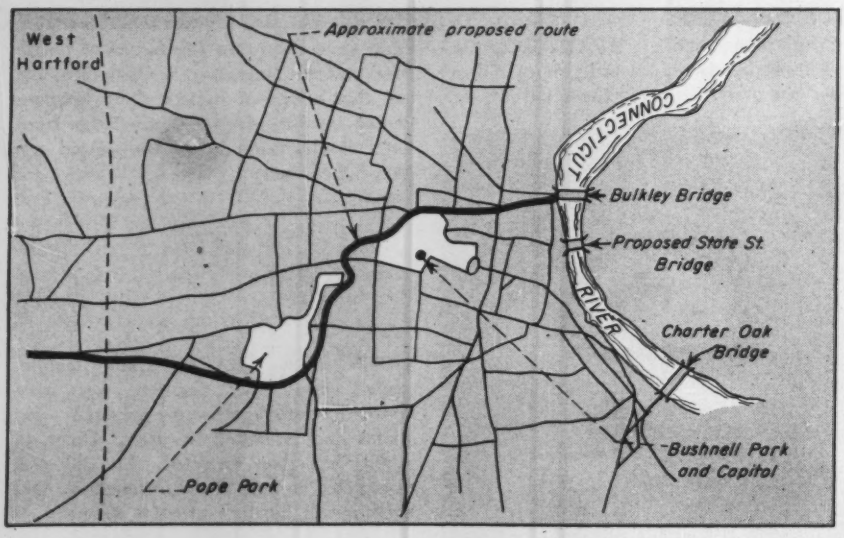
The bridge proposal brought most of the original actors back on stage. The city wanted the first leg of the interurban highway built before the bridge was built, the state wanted to go ahead with its bridge.

Finally, Governor John D. Lodge entered the argument in 1954 by appointing a special committee to study "all aspects of urban highways." The committee set to work to hear testimony from all sides.

In the middle of this, a third outside engineering report was released by the two municipalities. Said the report: The state's route would help solve the city's traffic problem.

The governor's committee finally reported, too. It agreed partially with all previous surveys, wholly with none. Principal recommendation: Carry the new highway on a viaduct over part of the railroad right of way. Meanwhile, widen existing streets to help ease congestion.

There's one more study still in the works: By the highway department, which wants to see what effect a legislative proposal to build five new bridges over the Connecticut River would have on any of the routes so far proposed for the expressway.



Rivers and Harbors

Annual meeting endorses 37 new projects costing more than $602 million

The 42nd annual National Rivers and Harbors Congress in Washington endorsed 37 new resource improvement projects estimated to cost more than $602 million.

The congress declared getting work under way on new projects and pushing construction of backlogged projects—$8.5 billion in work authorized but either not started or not completed—is a matter of "vital concern" to the nation. It recommended appropriation of at least $650 million annually for non-military improvement of water resources.

Rep. Overton Brooks, Louisiana Democrat who is president of the Rivers and Harbors Congress, gave the membership a heartening report. The backlog began to break last February, Rep. Brooks said, after the organization's projects committee complained to the Budget Bureau about "a national policy of pouring billions into foreign aid while neglecting or postponing our own internal development."

Sen. Allen J. Ellender, Louisiana Democrat, criticized the Administration's policy. He said he could not reconcile Pres. Eisenhower's request for foreign aid ($2 billion) with his recommendations for water development at home ($509 million for 113 projects).

The congress did side, however, with the President's "partnership" concept in resource development after Undersecretary of Interior Clarence A. Davis defended it vigorously. He said water development was "everybody's problem—federal, state, local and individual."

Frank E. McCaslin, chairman of the U. S. Chamber of Commerce Natural Resources Committee, took a similar tack on the question.

Delegates got another view on one aspect of that problem from Gov. Robert B. Meyner of New Jersey, a Democrat. The federal government, he said, "has always borne the full cost of improving our navigable waterways . . . . This is a sound national policy and I know of no exceptions to it."

Other developments:

• Lewis G. Castle of Duluth, administrator of the St. Lawrence Seaway Corp., said it may be possible to repay the $900-million authorized Seaway debt by 1993, or 15 years earlier than the deadline authorized by Congress.

• Rep. Joe L. Evins, Tennessee Democrat, said the House Appropriations Committee will be at work within the next few days on a new type of water resources money bill. For the first time, Rep. Evins said, the legislation will present an overall picture by basin areas of the water resources development program.

• Maj. Gen. S. D. Sturgis, Jr., Chief of Engineers, U. S. Army, said the $8.5 billion of unbuilt but authorized and active projects would return at least $17 billion in benefits.

"This situation starkly reveals the need for a national program based on orderly and sequential plans of development and aimed at eliminating the backlog within a reasonable time," Gen. Sturgis said.

"This in turn may well involve reconsidering our funding policies and perhaps a rescrutiny of other federal expenditures in the light of water-development needs," the general went on to say.

Call Bids on Dam

Bids will be opened July 6 for construction of the $10-million Hogback Reservoir Dam near Colebrook, Conn., the Metropolitan District Commission announced last week.

The dam will have a capacity of 47 billion gallons. It will be 115 ft high, 1,000 ft thick at the base and ¼ mi long. Schedule calls for completion in 1958.

Army Engineers Postpone Gavins Point Dam Closure

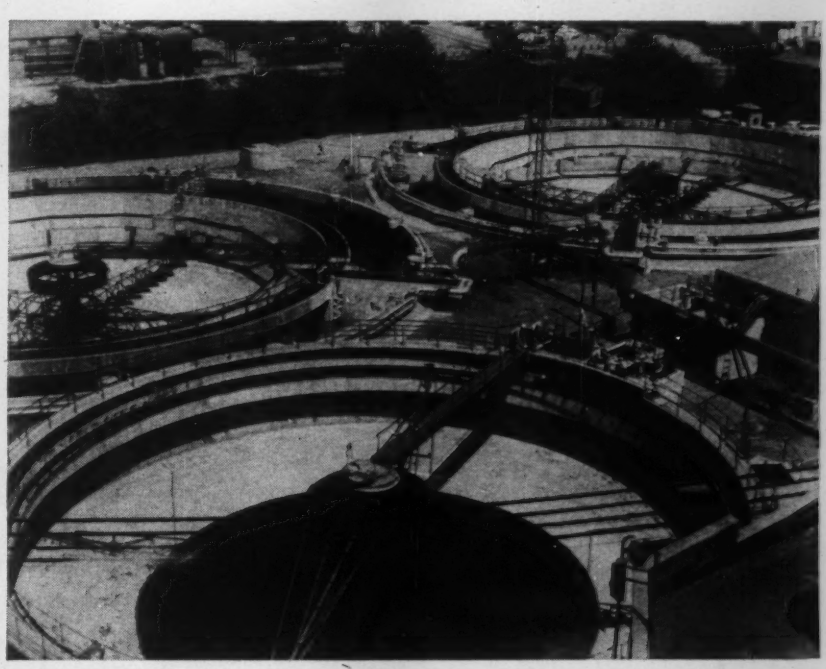
Closure of the Army Engineers' Gavins Point Dam across the Missouri River near Yankton, S. D., has been postponed.

The key to the revision in dates is the setting of the guides, seals and gates of the dam's powerhouse intakes, explained Brig. Gen. W. E. Potter, Missouri River Division Engineer at Omaha.

Work on the gates is still far from complete. Until the gates are ready for use, the earthen plugs that guard the intake works and keep them dry cannot be removed. Their removal is a 30-day job. Until the plugs are out, closure cannot come.

As a low-head reregulating dam for the Fort Randall Dam 75 mi upstream, Gavins Point has no flood control tunnels. When closure comes, diversion will be through the power intakes. After closure is accomplished, the flow of water through the intakes will be cut off with the gates. Head then will be built up to put water over the spillway, and the intakes will be dewatered so that work can go ahead on the power installation.

Fort Randall power deliveries dictate a closure over a week-end. To aid in closure, Fort Randall's releases will be cut from 23,000 csf to 7,000 cfs (ENR Mar. 31, p. 25).



Paper Mill Boasts New Waste Treatment Plant

The first activated sludge plant for treatment of paper mill wastes is ready to go into operation. The West Virginia Pulp & Paper Co. expects its plant at Covington, Va., (ENR Dec. 2, 1954, p. 30) to achieve 80% to 90% BOD removal. Pulping wastes, after settling in the clarifier (foreground) will be combined with clear bleach wastes and aerated and settled in tanks (background).

CAFRITZ BUILDING gets

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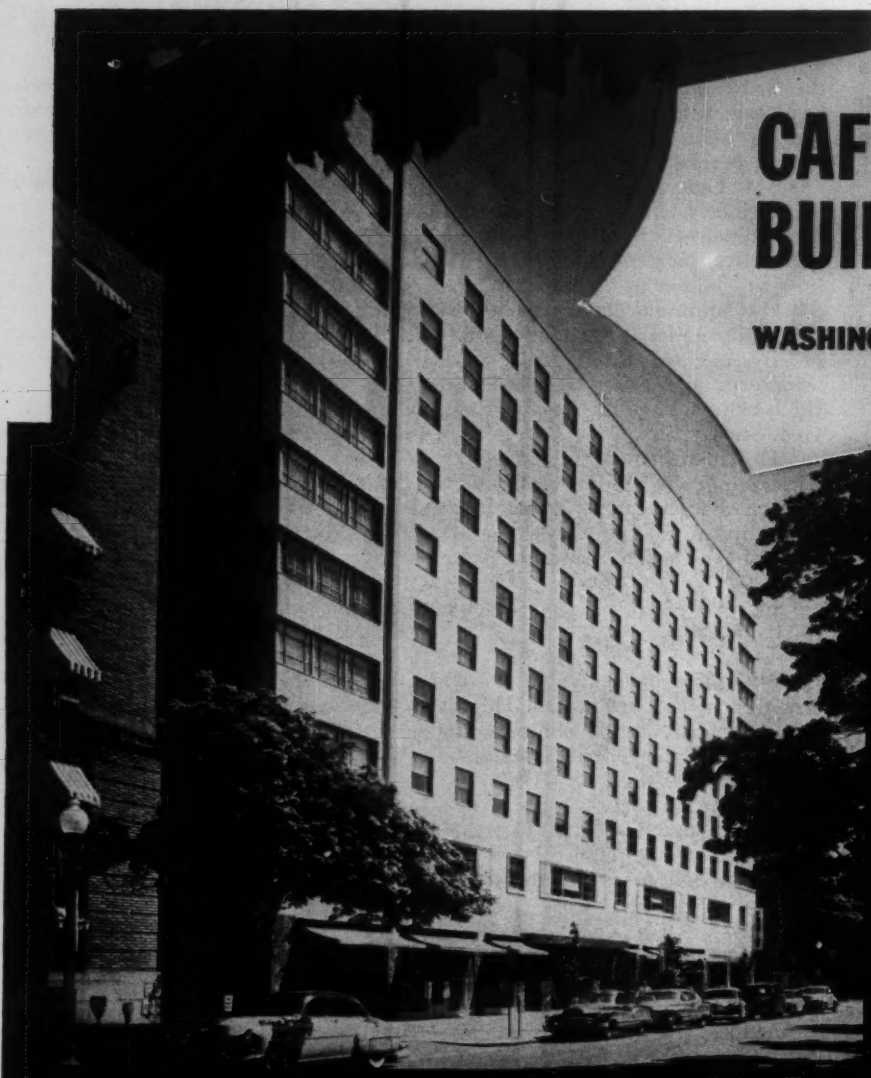

LeRoy L. Werner, Architect • Beall & LeMay, Structural Engineers
Cafritz Construction Company, General Contractors

For this novel, 10-story building with parking space on each floor, architect Werner chose a reinforced concrete frame with R/C Duct Floors. In addition to the low-cost, electrical flexibility provided by R/C Duct Floors, he states that they eliminate expensive furring because piping and ductwork are readily run in spaces between the concrete joists.

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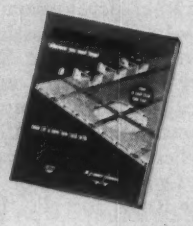

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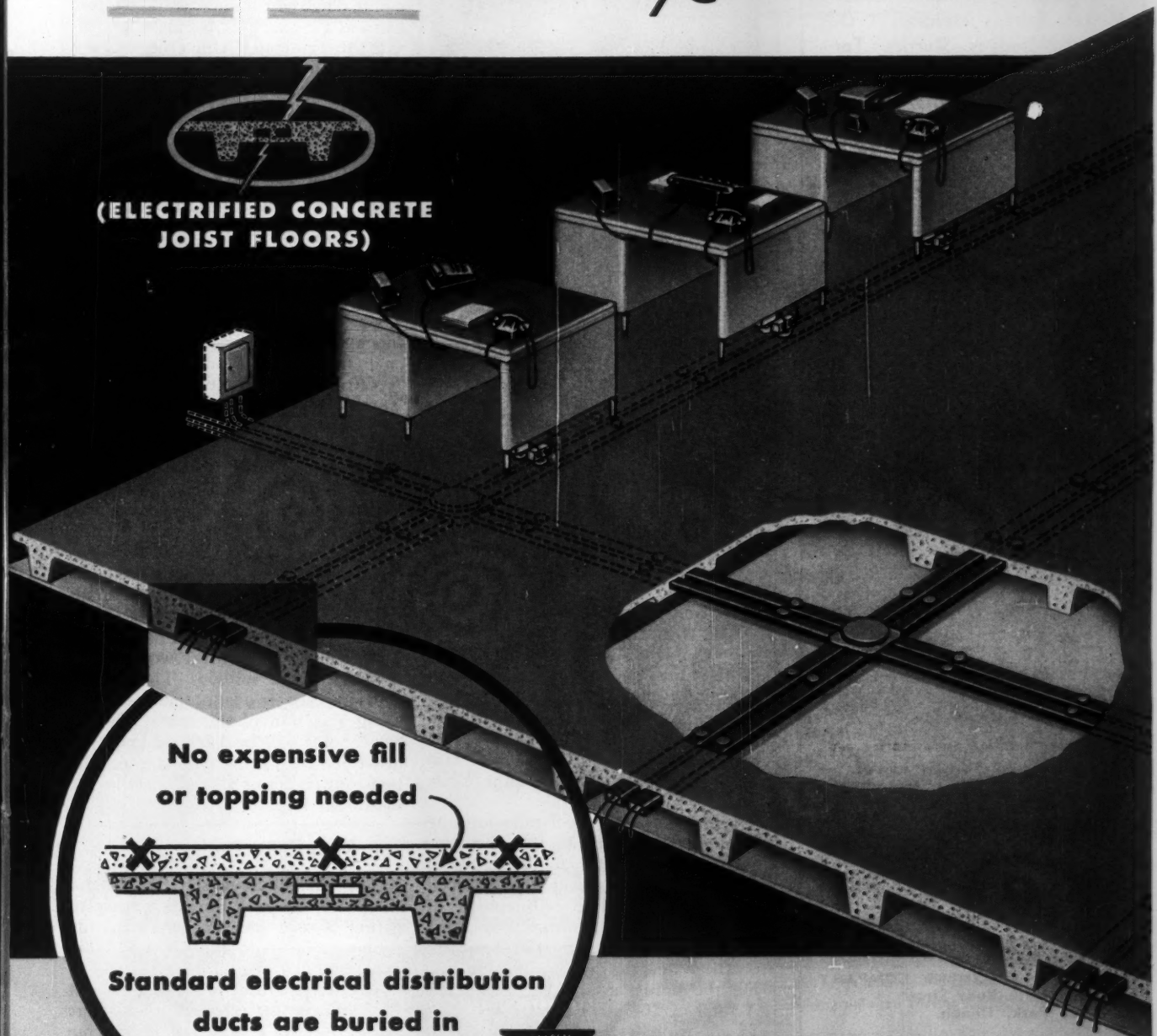
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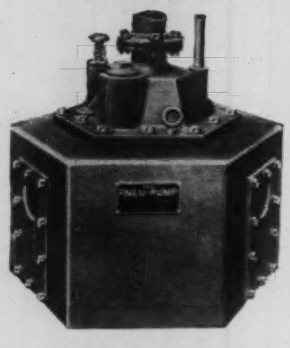

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COFFERDAM for St. Lawrence power project is 4,200 ft long.

Long Cofferdam Closes Site Of St. Lawrence Powerhouse

One of the first phases of the St. Lawrence power project—construction of a 4,200-ft-long steel cell cofferdam —has been completed in the St. Lawrence River between the Canadian shore and Barnhart Island.

The cofferdam, along with a 500-ft one completed some time ago, seals off the north channel of the river near Cornwall, Ont., to allow construction of the powerhouse in the dewatered site. The 2½-mi-long area between the cofferdams will be pumped out with four electrically operated pumps (ENR Jan. 13, p. 25).

Each of the 60 steel cells forming the long cofferdam is 65 ft in diameter and loaded with fill material. Up to 6,500 cu yd of gravel was dumped into each cell. The cells consist of ⅜-in. steel sheet piling and were formed by placing a floating template on the water, threading and then driving the piling around the perimeter. A total of 162 steel sheet piles, each 15 in. wide, were driven down into the river bed.

Contracts for the powerhouse are expected to be awarded shortly so that construction can start as soon as the area between the two cofferdams has been dewatered. Mannix-Raymond Ltd., Montreal, built both cofferdams.

Cement Maker Will Match Employe Gifts to Colleges

Lehigh Portland Cement Co. has announced that it will match all gifts up to $500 made by its employes to colleges and universities in the U. S.

Both privately endowed and state-supported institutions will be eligible to receive the matching grants. The only requirements are that the college or university be located within the U. S. and be properly accredited for a four-year course leading to a degree.

The cement company inaugurated a long-range educational assistance program in 1951 by establishing a scholarship at Princeton University. Since then the firm has established scholarship funds of $25,000 each at Lehigh University, Lafayette College and Muhlenberg College.

Honolulu Awards Contract For Two Traffic Tunnels

Undismayed by the series of accidents that have plagued construction of a major tunnel in the same area, the city-county of Honolulu, T. H., is going ahead with other phases of a program to ease traffic through the encircling Koolau Mountains.

Work on the municipality's Wilson Tunnel through the mountains is still stalled as result of cave-ins last summer (ENR May 19, p 26) while authorities and the prime contractor wrestle over legal matters.

But Honolulu has now gone ahead to award a contract for two tunnels and other work to improve an existing, parallel, cross mountain highway that lies southeast of the location of the Wilson Tunnel.

The Honolulu contracting firm of J. M. Tanaka will do the work, on its low bid of $2 million. The project calls for two two-lane traffic tunnels along a section of the route. One of these bores will be 1,000 ft long, the other 500 ft. A bridge will connect the two tunnels across a small cleft in the mountain face.

Ice Repellent Probe

The City of Rochester, N. Y., and the Better Business Bureau are investigating a road ice repellent after its promoter failed to bid on a $10,000 contract tailor-made for him.

Rochester recently decided to test the additive on selected city streets (ENR June 2, p. 32) and started the probe when the expected bid was not received.

The substance, when added to cold mix asphalt as it is laid, is supposed to prevent the formation of ice for a long period. It reportedly was developed by a German scientist.

Revolutionary Shoring Method

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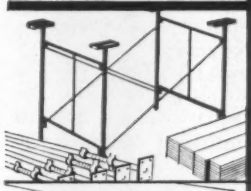
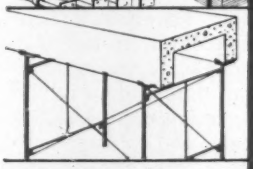
ON EVERY JOB

That's right —we said ***up to 50% savings on every job*** with the ADVANCE Scaffold method of shoring. We're selling a system—not a new-fangled product! Standard ADVANCE Scaffold equipment, plus Engineering Know-How, does the job.

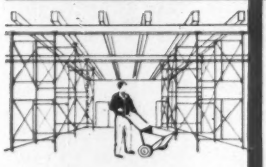


HERE ARE THE FACTS!

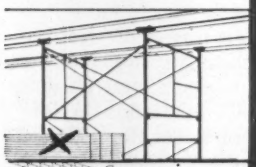
1. A single bay of ADVANCE Scaffold, which assembles ***without tools*** in about 10 minutes, replaces as many as 12 conventional wood or steel shores that take more than twice as long to erect.



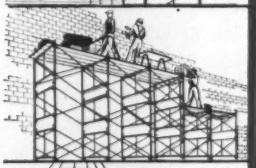
2. The scientific design and rugged construction of ADVANCE Scaffold assures ample strength to support ***all*** poured concrete . . . slabs up to 24″ thick— beams to 6′ in depth.



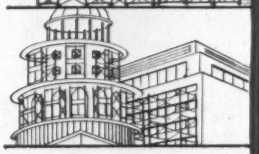
3. Towers of ADVANCE Scaffold are self-supporting. No additional lateral bracing is required and a large percentage of nailing can be eliminated. Thus, there is more freedom of movement on the job and maximum SAFETY at all times is assured.



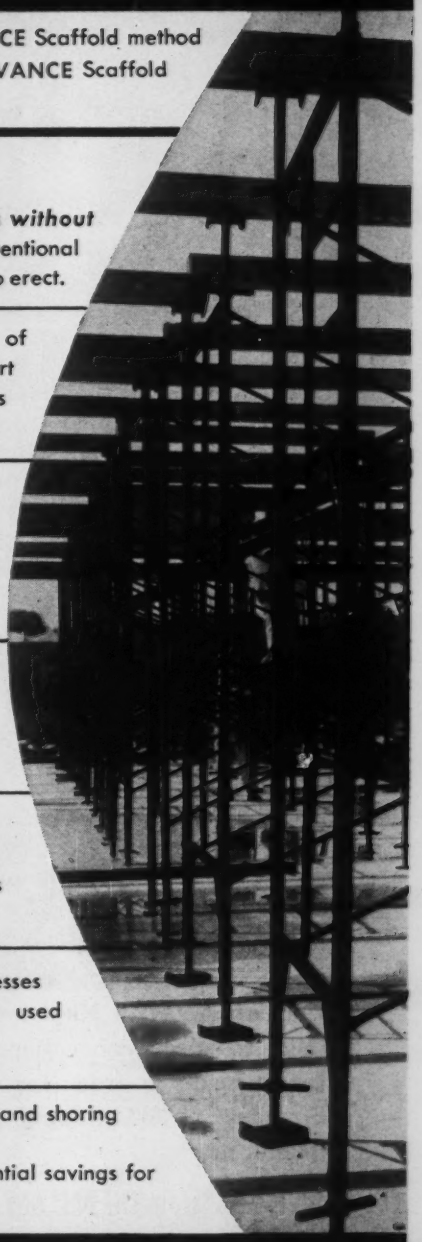
4. When shoring with ADVANCE Scaffold, there is ***no lumber loss*** and the hazard of fire is greatly reduced.



5. The same ADVANCE Scaffold employed for shoring can also be used as a work stage for building forms, stripping, masonry work, and other building trades as needs arise.



6. Because the basic design of ADVANCE Scaffold stresses flexibility, our ENGINEERED layouts can be efficiently used to shore virtually any type of concrete construction.



Want more FACTS?

Our engineers will gladly furnish comprehensive layouts and shoring estimates without cost or obligation to you.
Let us show how ADVANCE Scaffold can realize substantial savings for you on your next shoring job.

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BEAVER-ADVANCE
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I'm interested in obtaining detailed information on shoring with ADVANCE Scaffold.

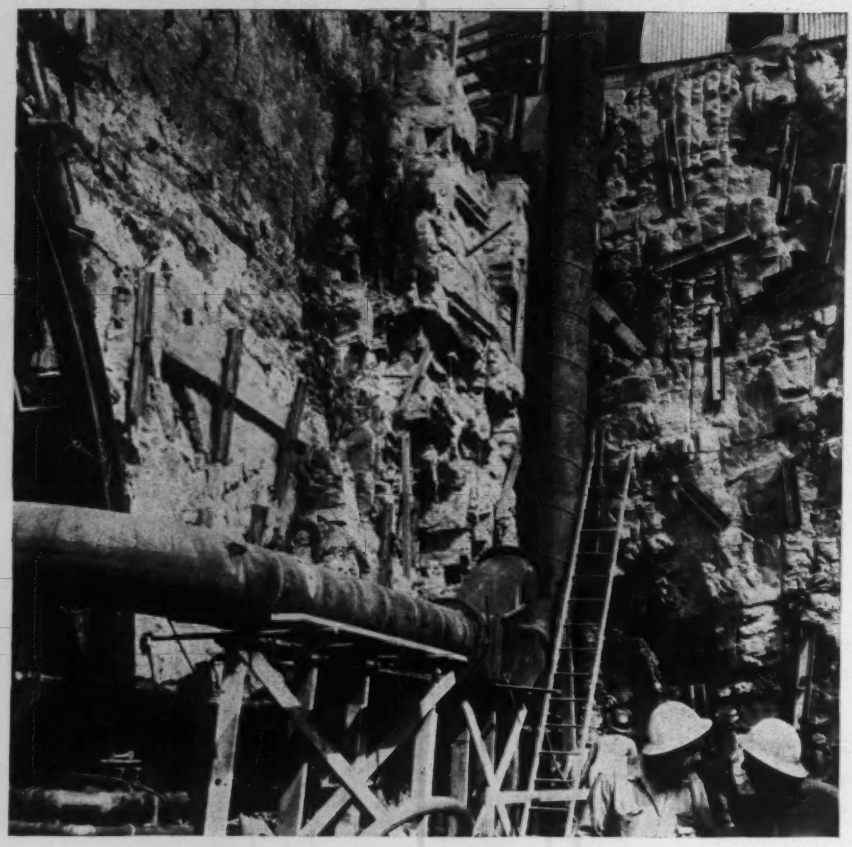
Name..... Position.....

Company.....

Address.....

City..... Zone..... State.....

AIR FUNNEL FOR TUNNEL



For those vital ventilating lines in underground construction, contractors know they can depend on Naylor Spiralweld pipe. Along with light weight for easier handling and installation, Naylor pipe offers a structure with the collapse strength necessary for push-pull ventilation. With Naylor one-piece Wedge-Lock couplings to speed connections, you have a combination that's made to order for construction jobs like this. Sizes: 4" to 30" in diameter. Thickness from 14 to 7 gauge.

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News Briefs . . .

Outdoor Air Conditioning

To help combat summer heat, the St. Louis Municipal Opera has installed two dispersal fans to "air condition" its outdoor theatre in Forest Park. The fans, similar to those used at airports and on turnpikes to scatter fog, consist of a 9½-ft propeller atop a 30-ft tower. The new cooling system is designed to bring more than 1,000,000 cu ft of dehumidified air an hour from the upper atmosphere to ground level.

Another Skyscraper

Southland Life Insurance Co. has approved preliminary plans for its $20-million Southland Center in downtown Dallas. In addition to a 40-story skyscraper featuring a helicopter landing platform, initial construction will include an underground garage and a retail shopping area. The center has been designed by Welton Becket & Associates of Los Angeles so that two additional office towers—one 20 stories and the other 25—may be added later.

Preliminary OK

The proposed $57-million, 35-mi toll road between Richmond and Petersburg, Va., is financially feasible, according to preliminary surveys made by Coverdale & Colpitts, and Parsons, Brinckerhoff, Hall & Macdonald. The project is expected to get the go-ahead signal in mid August.

Airport Plans

Three Los Angeles architectural and engineering firms have been hired to prepare preliminary plans and designs for new terminal facilities at Los Angeles International Airport. The study, to be made by Pereira & Luckman, Welton Becket & Associates, and Paul R. Williams, will take six to eight months to complete at a cost of $72,000. A bond issue to finance construction is expected to be placed on the ballot in November 1956.

Turnpike Study

The Indiana Toll Road Commission has completed arrangements to start studies of a projected north-south turnpike route connecting the Calumet area with a point east of Indianapolis. Preliminary surveys will be made by J. E. Greiner Co., Baltimore; Wilbur Smith & Associates, New Haven, Conn.; Parson, Brinckerhoff, Hall & Macdonald, New York City.

ERIE STRAYER BATCH PLANT CUTS COSTS 20% FOR DIXIE CONCRETE PIPE COMPANY, NASHVILLE, TENN.

•

"Also Gives Us a Better Product"

SAYS E. C. RODGERS, PLANT MANAGER

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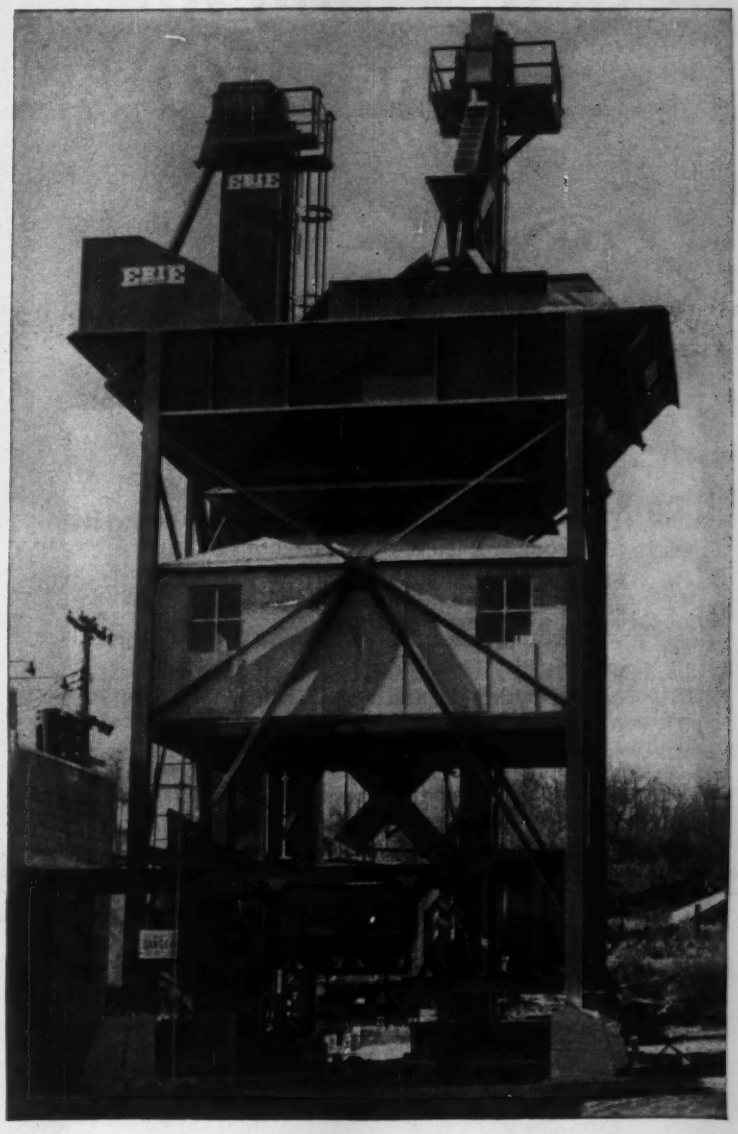

Just one man mixes all the concrete needed to keep Dixie Concrete Pipe's equipment humming. An electrically-powered, mixed concrete hopper with remote control places mix in pipe machines. Plant will meet future needs of a pre-cast products casting yard also. Sold by Industrial Tractor and Equipment Company, Nashville.

DIXIE CONCRETE PIPE COMPANY, Nashville, supplies a large part of the concrete products for the busy Middle Tennessee area. This includes the pipe for Nashville's new sewage disposal system and T. V. A. Consequently, their pipe casting and block machines must keep up steady, swift production of quality products.

Until recently, Dixie Concrete bought their cement in bags. But last year, plant manager Rodgers, plant superintendent, W. J. Finney, and office manager, Wayne Harper decided they could effect a considerable savings by using bulk cement. Not only would they reduce the initial cement cost, but they would also save on freight, handling and materiels loss.

They looked over the plant suppliers—they bought an Erie Strayer Concrete Product Plant. Superior design, better engineering, and Erie Strayer's national reputation are the factors that sold them.

Whether you sell concrete or concrete products, before you buy, consider these proven advantages of Erie Strayer Plants:

1. Fast, economical erection.
2. Efficient design. Bins and batching equipment precision-engineered throughout.
3. Easy-to-reach, easy-to-work controls.
4. Greater production from faster batching and discharging cycle.
5. One-man operation.
6. Greater durability—standard, easily replaced parts.

Erie Strayer Central Mixing Plants feature the same fine engineering and money saving advantages.

For literature, write Dept. R65-1

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ERIE STRAYER COMPANY

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Grandpa thought he was saving money...

"Yes, dear, 25 years ago grandpa was on the Water Board when they ran the pipe line out Madison Street to Western Heights. Grandpa and the other members voted to buy a substitute for cast iron pipe—they thought they were saving money. Now this pipe has failed entirely after years of expensive maintenance caused by breaks and leaks.

"Tonight we're letting a contract to replace that pipe. As Water Board chairman, I'm going to recommend the purchase of Clow Cast Iron Pipe—a pipe with a *proven* record of long service and low maintenance expense. It might cost a little more now than substitutes do, but it will be much less expensive in the long run. You might say that cast iron pipe is the taxpayer's friend—and Clow centrifugally cast pipe is the most economical of all. What's more, we've talked to other waterworks officials and Clow has a wonderful reputation for consistent high quality and excellent service."

Clow Cast Iron Pipe meets all currently approved specifications now in existence. Write today for factual information and case histories on Clow's 75-year-old reputation for economy.

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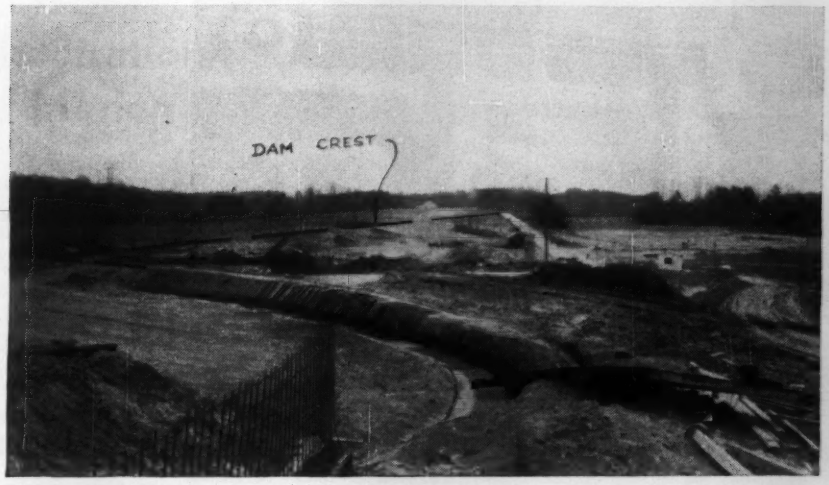
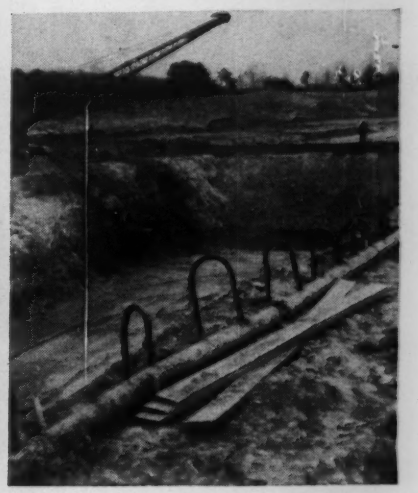
CAST IRON



FUTURE DAM will seal shallow basin valley at right, forming second municipal reservoir. Spillway (foreground) will be bridged by a road across dam crest.



UNDESIRABLE CORE MATERIAL is draglined out of dewatered core area.

Tiny Town's Big-Town Thirst Quenched by Piggy-Back Lakes

Roxboro, N. C., is a small town, boasting only 5,000 population, but it has a city-sized thirst. On the basis of equivalent population and rules of thumb, its present water cosumption would indicate residency of four times that number—and still the demand exceeds water supply.

It was only by measure of severe restriction that the town weathered the dry summer of 1953, and Hurricane Hazel, hitting Roxboro in September, 1954, turned benefactress in this instance, dumping between five and six inches of rainfall on the watershed when the town's 115-mg reservoir had dropped to an all-time low.

Major consumer of municipal water is the Collins-Aikman Corp., a textile manufacturer that uses more than 1½ mgd, but adding to the shortage is the growing use of irrigation for the area's cash crop of tobacco. More than 2,000 farm ponds for this purpose have sprung up through recent years to catch thousands of acre-feet of surface runoff that once fed directly into local streams.

Unwilling to face the impending disaster of another dry summer—or trust nature to send along another hurricane—town officials retained Piatt and Davis, consulting engineers of Durham, N. C., to find a remedy.

P & D found that to the north of the existing municipal reservoir was a 95-acre, flat-bottomed basin that could be effectively dammed at its northern end by a 1,200-ft dam. Such a structure would provide Roxboro with an additional 700 mg of storage; and the engineering firm found other natural advantages.

First, the basin was mostly pasture land, requiring minimum clearing and grubbing, and absence of dwellings and structures eliminated need for expensive rehabilitation operations.

The flat floor of the basin provided another advantage. The fall in elevation from the base of the existing dam to that of the one proposed is only 6 ft, a condition that allowed the lake to be practically emptied even with the intake structure located at the southern end of the new storage facility.

Since a recently completed 3-mgd filtration plant—designed to treat enough water to satisfy Roxboro's projected needs for more than ten years—is located near the dam end of the existing reservoir, the new intake tower was planned for the new-lake side of the existing dam. This eliminated installation of 3,000 ft of pipe.

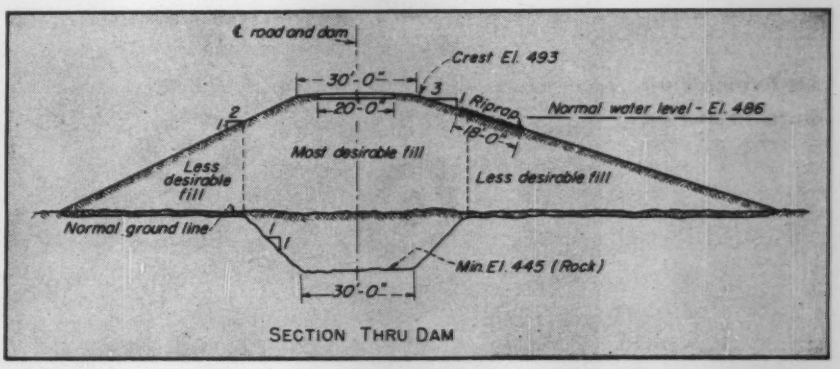
One problem was revealed by borings at the new damsite. From a normal ground elevation of 462 ft, borings showed successive repeating strata of sand, silt and sandy muck down to rock at 446 ft. For the earth-fill dam recommended, the core area would have to be excavated to rock for a distance of about 300 ft. longitudinally, and filled with impervious material.

Excavation subsequently was made by dragline, with drainage of the core area by wellpoints. Availability of sealing clay and desirable fill material in the basin assured a low-cost job.

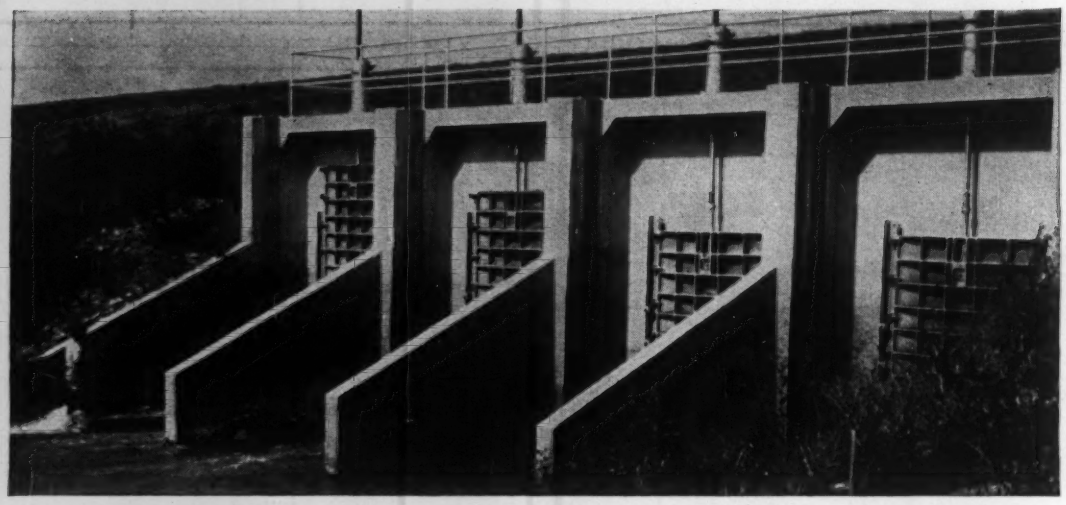
The dam, with crest elevation at 493 ft, will carry a road replacing one that will be inundated. It will have a reinforced concrete spillway and bridge at the western end of the earth-fill portion, with a reinforced concrete cutoff carried below existing ground level.

Contract for all new work was let in October, 1954, at a price of $149,208 to C. Y. Thomason Co., of Greenwood, S. C., with completion slated for July. The cost of land was about $45,000. Engineering cost was not included in these figures.

According to P. D. Davis, of the consulting firm, if the little town with big-town water needs can survive this summer, it won't need to worry about an adequate water supply for another 10 to 15 years.



SMALL IN SECTION, but town's survival depends on 700,000,000 gallons impounded.



Typical Armco Slide Gates

Armco Gates give you efficient, low-cost water control

There are more than 30 standard models of Armco Water Control Gates —and all are supplied in a choice of sizes. This means you can select the exact gate you need to solve problems of flood control, irrigation or water supply efficiently and economically.

When you choose Armco Gates, you get quick, easy operation, practical watertightness and long service life at *moderate cost*. Evidence of this is in the thousands of satisfied users of Armco Gates since 1911.

Of the various types of Armco Gates, two are particularly useful in flood control and other engineering projects. These are:

SLIDE GATES. ***Light or heavy duty; withstand face pressures up to 50 feet; rectangular or circular in sizes from 8 inches up to 96 inches, cast iron or structural steel.***

FLAP GATES. ***Will withstand face pressures up to 50 feet; circular openings from 4 to 120 inches; rectangular openings from 24 inches square to 72 by 44 inches; cast iron, cast steel or plate steel.***

Other types of Armco Gates include: Radial Gates, Roller Bearing Gates, and Meter Gates. These too are available in a wide size range. For more data on Armco Gates, write us, telling about your water control problem. Armco Drainage & Metal Products, Inc., 5355 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

Armco Water Control Gates

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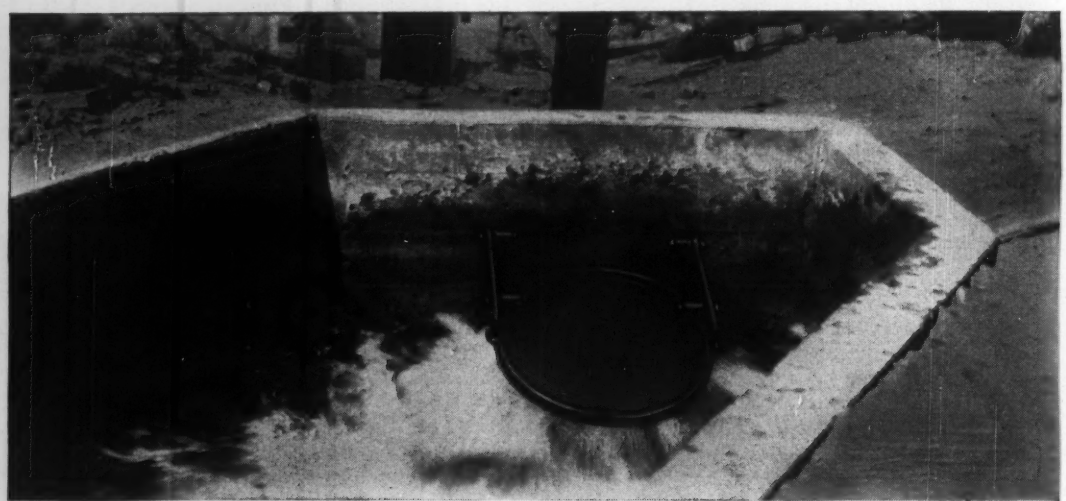


An Armco Flap Gate in Action

Infiltration Gallery Saves Dollars, Filtration Plant Extension Avoided

A system of water collection through horizontal, radial wells—the first on a large scale in the Pacific Northwest—will enable the City of Anacortes, Wash., to triple its water supply at less than one-third the cost of constructing a filtration plant extension. Annual operating costs of this in riverside infiltration system are expected to be very low as compared with $30,000 for operation of a filtration plant.

One interesting feature of the design is that unwanted groundwater, apt to flow riverward from inland, is intercepted and collected in two 80-ft branches extending away from the river. Each of these two collectors is at an angle of 67½ degrees from the lines paralleling the river. Groundwater collected is led through the wall of the well caisson and into a 16-in. still well that extends up above grade. It is thus kept separate from collected gallery water in the well sump.

Since 1930, Anacortes has been pumping Skagit River water through a conventional filtration plant with a capacity of 5 to 7 mgd. An oil refinery, now under construction, will require an additional 3½ mgd, and two other large industrial newcomers will need several million more. Industrial expansion has led to the construction of 500 new homes in the area during the past year, thus raising demands still further.

Carey & Kramer, Seattle consulting engineering firm, was retained to investigate methods of increasing the supply. The Skagit River could easily supply the new demands, Carey & Kramer concluded, but the project would call for a new filtration plant costing nearly $1,000,000. As an alternative, the engineers recommended that the city investigate a system of water collection, used by a number of cities in the Midwest. The method will collect river water, filtered through existing gravel strata, in perforated horizontal pipes leading to a large-diameter vertical well.

In accordance with the Carey & Kramer recommendation, Anacortes engaged the Ranney Method Water Supplies, Inc., of Cincinnati. They found a suitable gravel deposit near the city, across the river from the filtration plant.

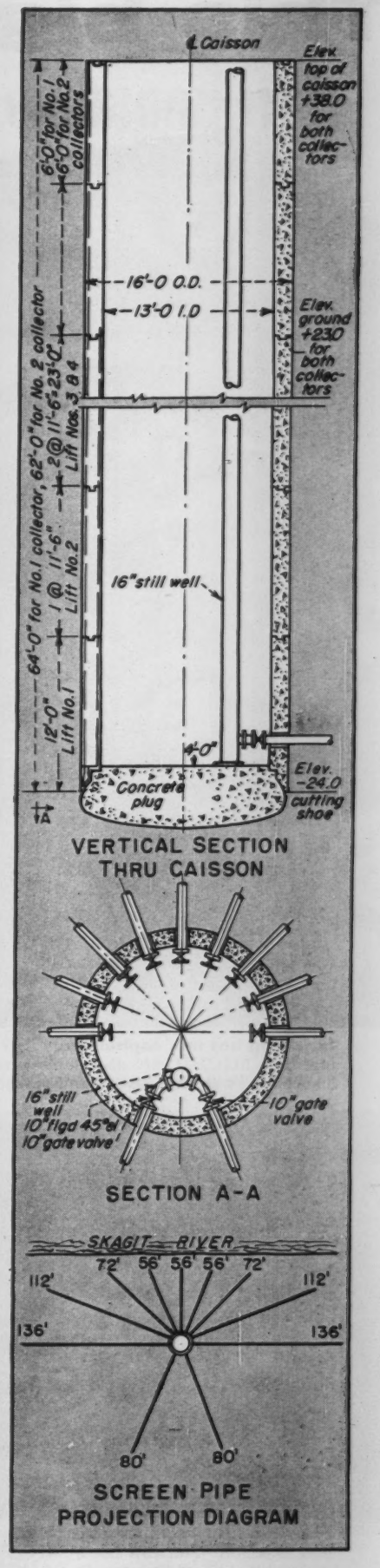
The wells were excavated to a depth of 56 ft, about 700 ft apart and 50 to 60 ft back from the river bank. They were lined with concrete to a thickness of 18 in. as excavation progressed, leaving the well with the inside diameter of 13 ft.

Eleven horizontal collectors were then hydraulically jacked from each caisson, about 20 ft below the river bottom. Nine of these, consisting of 10-in. perforated steel pipe, radiate in a fan-shaped pattern toward the river at spacings of 22½ degrees, and vary in length from 56 to 136 ft. All water entering the well is filtered through more than 20 ft of sand and gravel.

• **Unwanted water intercepted**—The other two collectors, each 80 ft long, are directed away from the river for collection of groundwater that is undesirable because of high iron content. This is collected and bypassed directly to the river. At high river stages groundwater is not expected to present much of a problem, because at well locations seepage will be away from the river. Critical periods are anticipated when the river is low, and groundwater is draining toward the river. Should the two interceptor-collectors prove inadequate, three conventional wells will be sunk 300 ft back from the bank for protection of the infiltration gallery supply. Groundwater is prevented from entering each well caisson from below by a concrete seal.

The two wells, constructed at a cost of about $266,000, will supply a combined total of 20 mgd when placed in operation in July. Since water from the wells is expected to contain a certain amount of iron, the existing filter plant will process water used for domestic purposes.

The wells are part of a $1.6-million project that also involves replacing 26,000 ft of the city's existing 59,500-ft, 24-in. supply line with 36-in. pipe. Capacity of the system now being constructed will be 17 mgd and can be increased to 25 mgd when the entire supply line is increased to 36 in. diameter. The city also can increase the capacity of its present wells by about 6 mgd through installation of an additional pump in each well.



HORIZONTAL WELL DETAILS—Concrete placed in lifts of from six to twelve feet, with concrete plug poured after caisson reached final depth, thus forming pressure seal with cutting shoe. Not shown are four pump discharge pipe ports, each 1 ft-6 in. square that were chipped out after fourth lift was in place.

This big POWERHOUSE

Stripping hot mix asphalt from its concrete base without benefit of scarifying! The MICHIGAN also demonstrates its ability to get a heaping bucket load even at ground level—and transport it only a few inches off the ground.

CLARK EQUIPMENT

Push-loading a scraper for A. J. Raisch, San Jose, Cal.—a real test of power and traction. You can use a MICHIGAN where you've never been able to use rubber-tired Tractor Shovels before—versatility that cuts your costs.

handles bigger jobs cheaper!

Look at these specs of the 2¼ yd MICHIGAN 175A

BUCKET CAPACITY	**2¼ cubic yards**
LIFTING CAPACITY	**15,000 lbs.**
HORSEPOWER: Diesel . . . 133; Gas . . . 126; Supercharged . . . 165	
WEIGHT	**24,100 lbs.**
SPEEDS	**Up to 27 m.p.h. Forward or Reverse**

Don't look for "comparative" data on the MICHIGAN 175A—there is *no machine comparable.* This big bruiser is nearly 50% bigger than the next closest machine on the market. It's literally in a class by itself. From fly-wheel to bucket, the 175A is built to do bigger, heavier jobs—jobs that no other rubber-tired machine can handle.

Better traction and flotation. With the MICHIGAN's exclusive power train—300% torque multiplication, power shift transmission (no engine clutch) and planetary wheel axles—you get a shockless flow of power right down to the ground. There's no surge, no wind-up in the axle shaft, no wild wheel spin. The operator has feather-touch control over his wheels; in weak soil conditions or mud, he can ease off or step up the power to keep from digging in. With this kind of smooth power transmission, you get the full advantage of the MICHIGAN's extra weight and power—you dig material *out*, you don't dig the machine *in*.

Independent power at the cutting edge. The 175A bucket action gives you independent power right at the cutting edge of the bucket. With two big double-acting bucket cylinders, you can ease up to a pile of tough material and dig your way into a heaping bucket load. On other machines, you'd have to ram headlong into the pile to try to get penetration—and you'd probably still get only half a load. We'll match the MICHIGAN's digging ability against any make or type of Tractor Shovel, bar none.

Hydraulic power does the work. In spite of its size and power, the MICHIGAN 175A is easier to operate than most machines one-third its size. Hydraulic power does all the real work: power steering, 4-wheel power brakes, power-shifting with two simple levers on the steering column, no clutch pedal.

Warning: don't let your operator get on a MICHIGAN unless you're willing to buy one! After an hour on a MICHIGAN, he'll not be satisfied with any other Tractor Shovel.

See it in action! We'll prove that the MICHIGAN is in a class by itself in the Tractor Shovel field: your local MICHIGAN distributor will arrange a demonstration—on your own job, if you wish. Or write for 12-page Tractor Shovel booklet containing explanation and cutaway drawings of the MICHIGAN power train. Any MICHIGAN is available on a low-cost Lease Plan—ask for brochure which explains how you can use it.

CLARK EQUIPMENT COMPANY, Construction Machinery Division, 390 Second St., Benton Harbor 30, Michigan—Phone WA 6-6184

6000-lb. steel truss, 60 ft. long, is transported from rail siding to steel-setting cranes on Austin Co. job in Michigan. The extra weight and power and inherent stability of the MICHIGAN Tractor Shovel give it the capacity to handle heavy yard-jobs like this.

Cold crusted asphalt tests the digging ability of any machine. Here the MICHIGAN breaks out a 9000 lb. heaping bucket load. When the operator steps on the brake, the power-shift transmission automatically goes into neutral—puts full power into the bucket action.

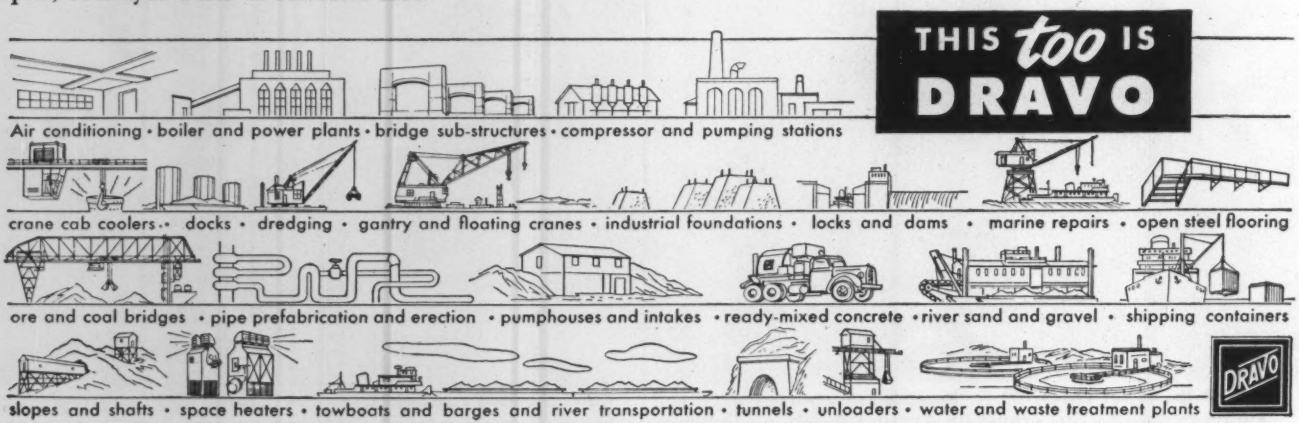
BRIDGING AN IMPORTANT GAP IN A LONG JOURNEY

From Cerro Bolivar, Venezuela, to the Delaware River in eastern Pennsylvania, iron ore is flowing steadily to feed the blast furnaces of United States Steel Corporation's Fairless Works. At the end of this 2700-mile journey are two versatile machines that transfer ore from ship to land.

Each of the identical Dravo ore unloaders is engineered to handle a 200-cubic-foot ore bucket. Both range the full length of a 1000-foot dock along a common runway, working as a team on a single ship or independently on two ships at once. The unloaders discharge directly to adjacent blast furnace storage pits, conveyor belts or railroad cars.

The Fairless unloaders have the important extra margin of safety to withstand stresses, strains and impacts encountered in this rugged service. They also have specially-engineered rail clamps for protection against windstorms.

Dravo has been serving business and industry in a variety of engineering, construction and manufacturing activities for more than 60 years. Throughout this period, customer satisfaction has been an essential aim in every transaction. For more information, write DRAVO CORPORATION, PITTSBURGH 25, PENNA.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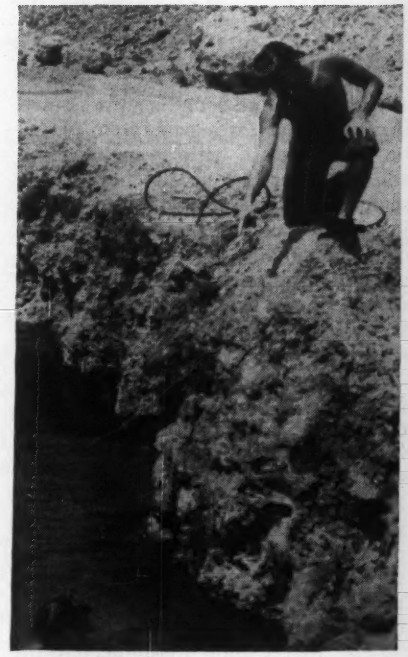
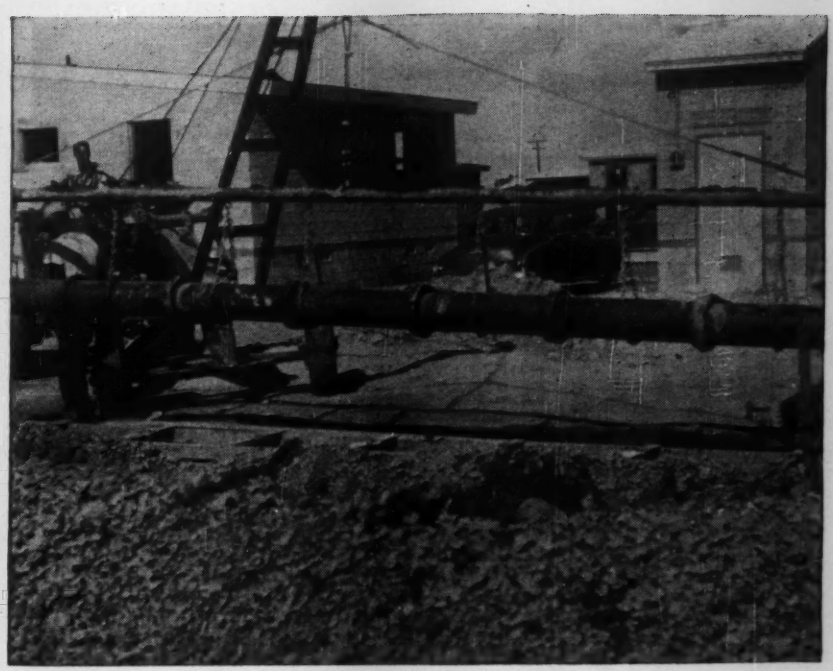


FINS AND FACE MASKS enable workers to check trench bed for loose coral.



PRE-JOINTED CLAY PIPE—a seven-length segment—swings free of wooden templet preparatory to being lowered on special rig to skindivers in flooded trench.

Skindivers Beat Tough Pipelaying Job

Underwater breathing apparatus—more normally used by swimming sportsmen—became a valuable addition to a contractor's utility kit, on a pipe installation job for the 400-home Coral Way Village housing development near Coral Gables, Fla.

"Skindiving" equipment, a vital part of the rapidly growing sports of underwater fishing and exploration, was used with outstanding success to complete an apparently hopeless sewer installation.

Morris Prosser Contracting, Inc., of Franklin, Ind., decided to tackle the job of laying 7,000 ft of 6-to-15-in.-dia pipe only after three other contractors had been defeated by 6-to-10-ft depths of water in trenches. Prosser was in the position to profit by their experiences.

Here is the score on operations to that time:

1. The first contractor quit outright when porosity of the sand-and-coral soil made conventional pumping impractical.

2. The second, working on a "cost-plus" basis, relinquished his contract when the developing company could no longer bear the high installation costs.

3. The third was released from his contract when infiltration tests exceeded specifications.

Collectively, the three firms had laid sewers for about 60% of the building sites before water, shifting sand and tough coral excavation halted work on the system more than 7,000 ft short of completion.

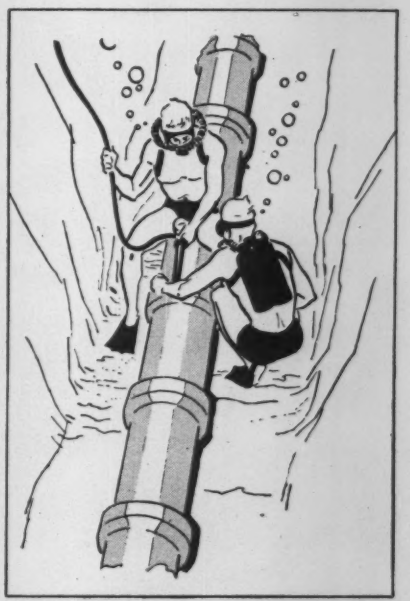
Almost every line installed under the earlier contracts tested far above the minimum infiltration of 500 gal-per-in.dia-per-mi-per-day. Original pumping equipment was discarded and more and larger pumps acquired. With 131 newly erected houses ready for occupancy—or nearing completion—developers were faced with accepting complete loss through abandonment of the site, or re-advertising the job in the hope that some enterprising outfit would sweeten the fast-souring investment. Prosser was awarded the contract at his low bid price of $50,000.

• **Divers make the difference**—Prosser engineers abandoned the idea of dry-trench methods immediately. When the skindiving technique was decided upon, however, several problems presented themselves.

Consultation with the Logan Clay Products Co., of Logan, Ohio, brought about specification of true-to-dimension vitrified clay pipe with hot-poured bituminous joints where joining was done on the dry banks of flooded ditches. Underwater joints were to be installed with grout-expanded inflatable rubber gaskets (ENR, July 1, 1954, p. 86).

Use of skindiving equipment necessitated long-length sewer segments that would hold the number of underwater joints to a minimum, so Prosser's men designed and fabricated a multiple-pipe templet and a lifting rig for placing joined segments.

The rig, a 20-ft 3-in.-dia steel pipe suspended by three wire rope leads from the shackle of a power derrick,



UNDERWATER OPERATION of sending pipe segment "home" and inflation of rubber gasket with grout is possible through use of aqua-lung supplementing swim-fins and face masks.

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2. EXTERIOR PLYFORM—made with waterproof glue for maximum form re-use.

3. OVERLAID PLYWOOD—glossy, smooth, tough resin-fiber surface fused to Exterior plywood. Gives greatest re-use plus smoothest concrete. EXT-DFPA* on panel means 100% waterproof glue.

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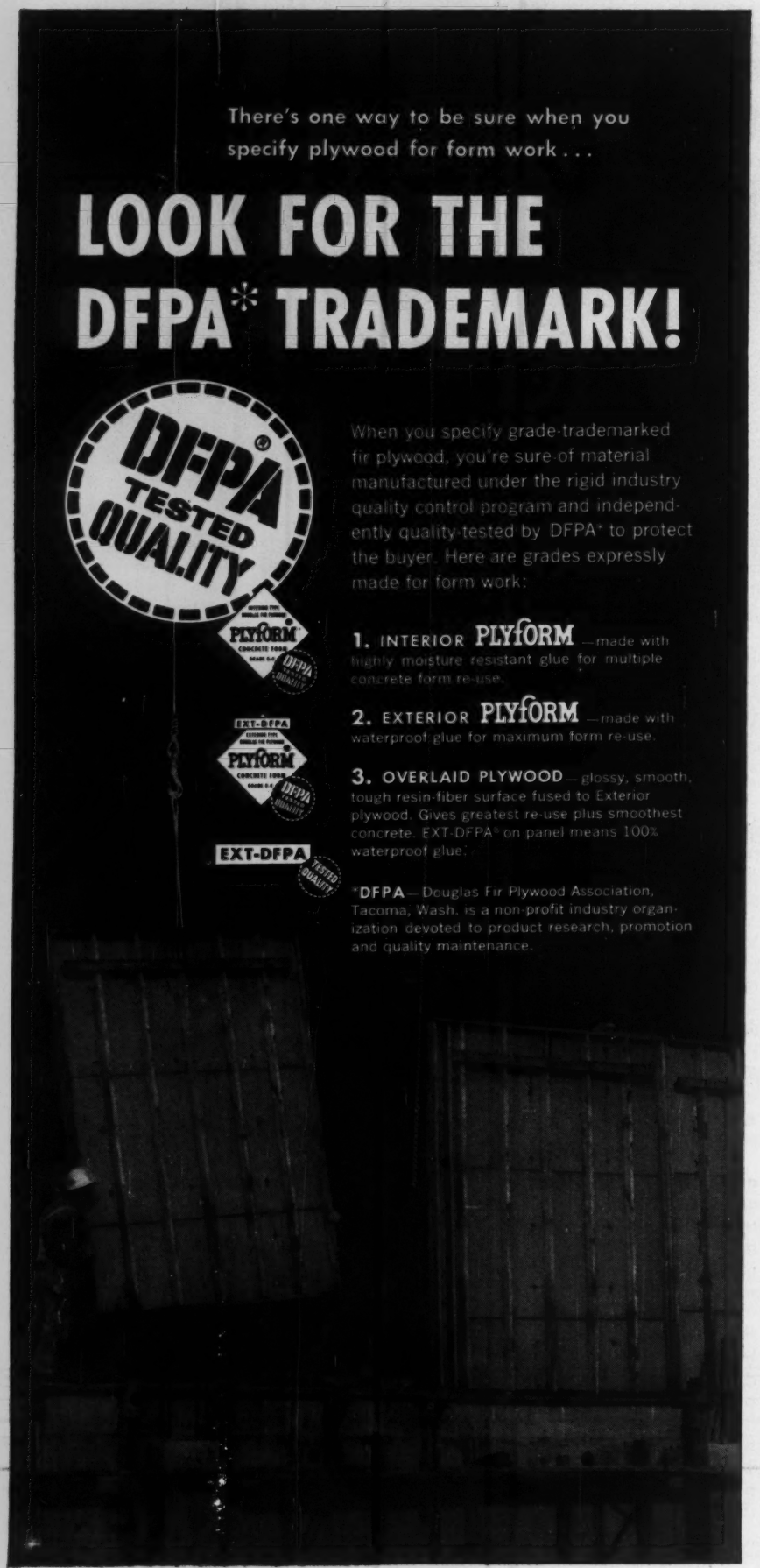
*DFPA—Douglas Fir Plywood Association, Tacoma, Wash. is a non-profit industry organization devoted to product research, promotion and quality maintenance.



was used for picking segments up from the ladder-shaped templet on which the 3-ft pipe lengths were joined.

First the pipe lengths were joined in pairs, then three pairs were placed on the template with a single length added. After the seven-length, 21-ft segment was secured with hot-poured joints, the inflatable gasket was placed over the spigot end and the segment was ready for installation. Light log chains of equal length were used between each joint, thus suspending the segment from the lifting rig.

The segment was then lowered into the water-filled trench where skin-divers handled final bedding and placing operations. The divers attached the nozzle of the flexible grout line to the built-in pressure joint valve. A manually operated grout cart, located on the bank was used to inflate the rubber joint to 50-60 psi, automatically centering the line and sealing out the trench water.

The divers then disconnected the grout nozzle, sealed the joint by closing off the valve's metal collar and resurfaced.

Elapsed time for installation was about 20 minutes per 21-ft segment.

Advance measurements determined the location of each fitting on the line, and when the fitting was needed within the next 21-ft section, it was inserted while the segment was still on the wooden templet.

• **System works**—Tests by the Community Utilities Corp., operators of all utilities for Coral Way Village, showed infiltration in 8-in. lines to be only 10 gal per 1,000 ft per 24 hours, which they considered extremely low for the high-water table and unstable soil conditions. Infiltration in the new section was checked out at an eighth of the minimum specified, so the entire system, including the sewers previously laid, now meets infiltration specifications.

Prosser is so satisfied with the technique that he plans to use it on a forthcoming installation of a 65-mile sanitary sewer system for the city of Coral Gables. The project will involve installation of pipe ranging in size from 6 to 21 in. in diameter.

Substantial credit for low infiltration rates on the Coral Way Village completion was due to the Logan Company, according to J. M. Lancaster, Prosser's general manager. "Logan pipe came to the job as true as a die, and it helped us to lay the sewers that way in the trenches," said Lancaster. Other top Prosser personnel on the job were Harry Jenner, engineer; F. C. Dent, job superintendent; and Hilbert Hermodson, foreman.

Chicago's parking facility program includes:

Ten Garages for Parking 6,900 Cars

George L. DeMent, Commissioner of Public Works and John G. Duba, Assistant Administrative Engineer, Chicago, Ill.

Chicago's $50 million Parking Facility Program authorized by the City Council in September 1952 is rapidly taking form.

Of ten parking garages planned, five have been completed and are in operation; two others are in advanced stages of construction and the remainder are scheduled for completion early next year. These ten new garages have a total capacity of 6,900 cars, to add to the 3,350 already accommodated in the five garages completed (See accompanying table).

Simultaneously, the city is acquiring land and building parking lots in seven neighborhood business areas. These lots, when completed, will accommodate a total of 4,100 automobiles. Six parking lots in the 63rd and Halsted Streets area on the south side of the city have already been completed.

The cost of the sites on which the garages are built ranged from $150,000 to $2 million, with an average of about $650,000. Where settlements could not be negotiated, property was acquired by eminent-domain proceedings.

• **Revenue bonds**—Of the $50 million Parking Facility Revenue Bonds authorized in 1952, $27.5 million have been issued to provide for the above facilities. Initially (in 1952), $14.8 million in bonds were sold for the construction of garages 1, 2, 3, 8 and 9 in the central business district (map) and for surface parking lots in the 63rd and Halsted area.

Next, also in 1952, an additional $7.8 million worth of bonds was issued for construction of the four parking garages Nos. 4, 5, 6 and 10 in the north Michigan Avenue area. Last year, a third sale of $4.9 million in bonds was made for the tenth garage (No. 7 on the far north side) and for the parking lots in six outlying shopping areas. Additional bonds will be sold in the future to finance other facilities in areas of the city where studies indicate the need and revenue prospects are satisfactory.

The revenue from the parking garages, parking lots, and the city's 27,000 parking meters is pledged for the payment of principal and interest of the bonds.

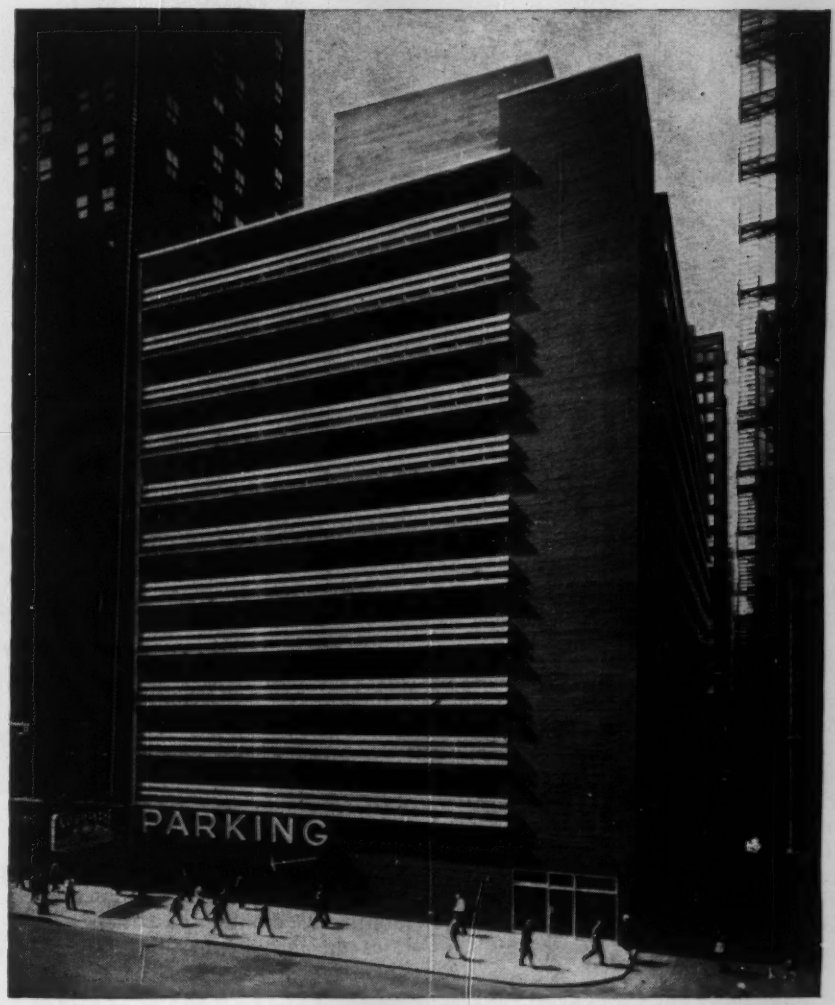
• **Types**—Seven of the ten garages are ramp type structures; three employ the Bowser type hoist, in which the elevator travels vertically, horizontally or diagonally to the storage stalls. One of the early installations of this method was in the 9-story, 430-car capacity municipally-owned garage completed in Des Moines, Iowa, about three years ago (ENR May 8, 1952, p. 62).

To expedite the program, ten architectural firms were retained—each responsible for the design of one structure. As a result, the construction features are diverse, reflecting the ideas of many minds. Here are thumbnail sketches of the 10 garages:

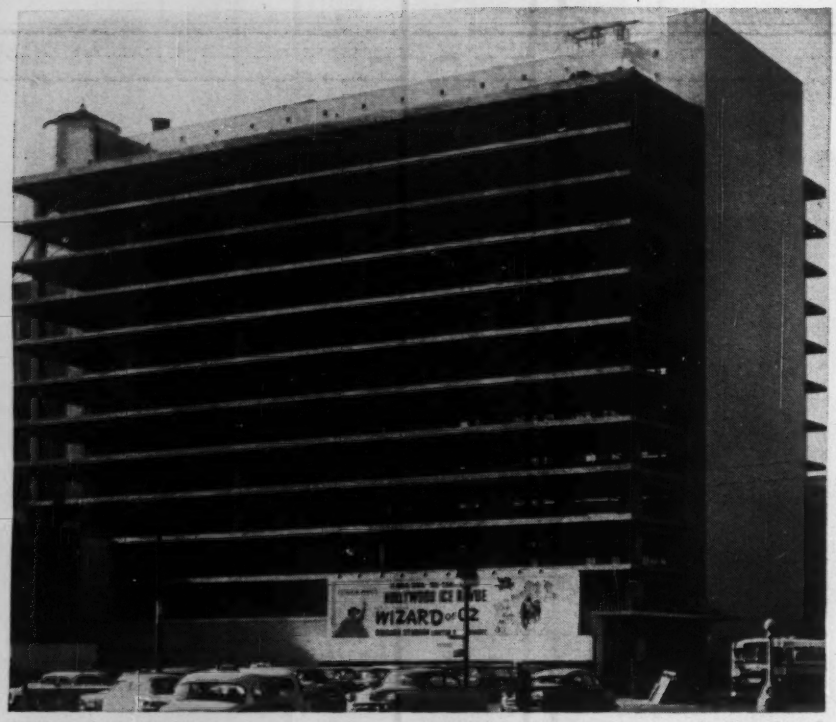
• **The tallest**—Garage No. 1 is a hoist-type structure, with a capacity of 715 cars at 14 parking levels. It was completed over a month ahead of schedule and opened in February of this year. Located at State Street and Wacker Drive in the central business district, its main entrance and exit are on the upper level of Wacker Drive. A secondary entrance is located on the lower level of that highway.

Designed by the architectural firm of Shaw, Metz and D'Olio, this garage features a protective barrier of prestressed stainless steel cables in place of outside walls. Five elevators carry the cars to the storage levels. Total cost, including land and construction, was $2,122,000.

• **The biggest**—Garage No. 2 is a ramp-type structure with five parking levels and a capacity of 1,230 cars. Fronting on the Chicago River, it has entrances and exits on both Madison and Monroe Streets and the two levels of Wacker Drive. A separate set of



TALL AND NARROW Garage No. 8 opposite City Hall will park 495 cars on 12 levels.



VERTICAL CABLES of prestressed steel serve as fenders at the outer limits of each floor of this 14-level, 715-car garage at State St. and Wacker Drive.

ramps is used for going up and another for coming down. Naess and Murphy were the architects.

This structure, the largest of the ten, has been in operation since December 1954. Self-parking stalls are provided for monthly parkers. The garage is in proximity to several large office buildings, the Civic Opera Building and the Chicago Daily News Building. Its cost totalled $2,575,000, including land.

• **State and Congress**—This is another ramp-type structure with four parking levels and a capacity of 665 cars. It is a split-level design by Everett F. Quinn and Associates. Construction is about 60% complete and is scheduled for completion late this summer.

Located at State and Congress Streets, this garage (No. 3) will be especially convenient to users of the Congress Street Expressway. Several hotels and department stores are located nearby. The cost of land and structure totals $1,750,000.

In split-level design, all parking levels in one area of the building are one-half story above corresponding levels in the rest of the structure. The chief advantage of this design is that it provides short, shallow ramps. They, in turn, permit quick and smooth flow of traffic through the structure.

• **Near North Side**—The fourth garage in the program will have a capacity of 1,000 cars. It is a ramp-type structure consisting of five split levels. The land cost $685,000 and the construction cost is $1,299,000. Located on Chicago's near North Side, at Grand and Wabash Avenues, it was designed by Schmidt, Garden and Erickson.

The construction contract, recently awarded to Herlihy Mid-Continent Company, requires completion in 14 months. Demolition of existing structures on the site has just been finished.

• **Precast louvers**—Another hoist-type, this 8-level structure (Garage No. 5) has a capacity of 420 cars. The total cost of land and construction is $1,222,000. The garage was designed by Loebl, Schlossman & Bennett.

It is also located on the near North Side, at Rush and Delaware Streets, to serve the north Michigan Avenue area.

A facade of precast concrete louvers screens the cars, yet allows ventilation. The A. L. Jackson Company is the contractor. The structure is now about 50% completed and is scheduled for opening early this fall.

• **Twin structures**—Garage No. 6, consisting of two 4-level structures separated by a 200x225-ft parking lot, has a capacity of 1,206 cars. The land cost was $2,024,000 and the cost of the structure $1,842,000. It is located on Chicago's near North Side, bounded by Huron, Superior, St. Clair Streets, and Fairbanks Court.

In peak periods the parking lot can be used for overflow parking from either building while during off-peak periods one of the buildings can be closed. Architects were Holabird & Root & Burgee. Completion of this garage is scheduled for early in 1956.

• **Far North Side**—The seventh garage in the program, a 3-level ramp-type structure to be built on Chicago's far North Side, is the only garage presently planned for a neighborhood shopping area.

It is located in the Lincoln-Belmont area, about 3200 North and 2000 West. It has a capacity of 256 cars and was designed by Frederick Stanton. Bids were recently taken but the construction contract has not yet been let. The total cost is estimated at $762,000.

• **Short-time parking**—The first of the hoist-type structures to be completed, the 12-level Garage No. 8 has

Construction Costs and Car-Parking Capacities

Garage No.	Capacity (Cars)	Description	Status	Construction Cost	Cost Per Car
1	715	14-level (H)	Completed	$1,657,000	$2,310
2	1,230	5-level (R)	Completed	1,683,000	1,370
3	665	4-level (R)	60% completed	1,027,000	1,560
4	1,000	5-level (R)	Contract awarded	1,299,000	1,300
5	420	8-level (H)	50% completed	970,000	2,310
6	1,206	4-level (R)	Contract awarded	1,842,000	1,530
7	256	3-level (R)	Bids received	615,000	2,400
8	495	12-level (H)	Completed	1,089,000	2,200
9	650	3- and 5-level (R)	Completed	1,084,000	1,670
10	262	4-level (R)	Completed	453,000	1,730
Total	6,899		Total	$11,719,000	

(H) = Hoist type (R) = Ramp type

Farmers Union Building,
Denver, Colo.
Architect—S. Arthur Axtens
Gen'l Contractor—
R. T. Bickhard Construction Co.

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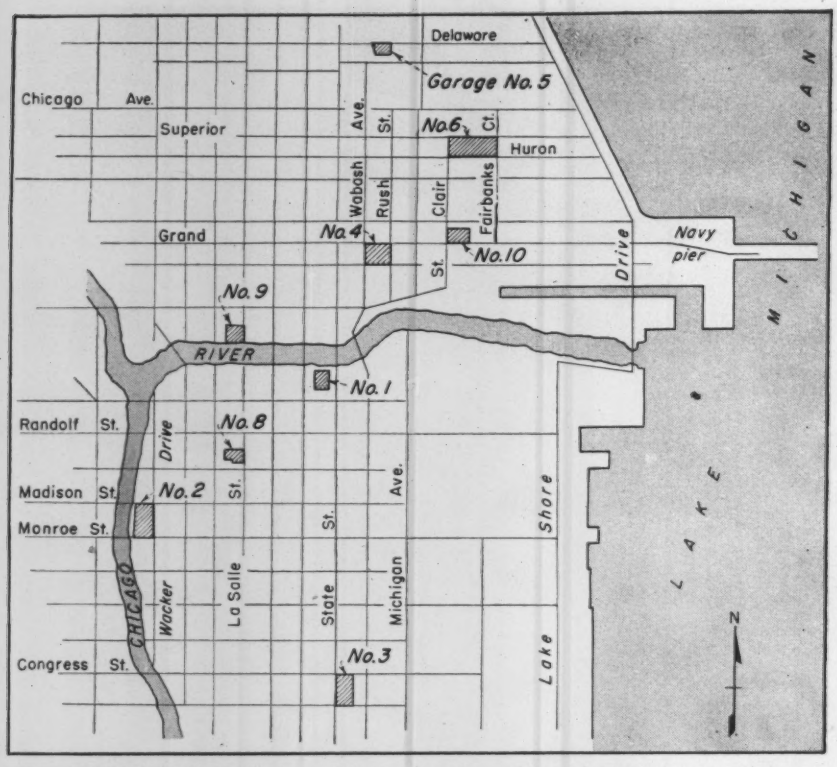


FIVE GARAGES (1, 2, 3, 8 and 9) will provide parking for 3,750 cars in the Loop and the central business district, while garages Nos. 4, 5, 6 and 10 will furnish parking for 2,890 cars in the North Michigan Ave. area. (No. 7 is outside map area.)

a capacity of 495 cars. It was completed two months ahead of schedule. The narrow site cost $585,000 and the structure $1,089,000. Four elevators serve 18 vertical tiers. Automobiles enter from the front and leave from the side of the building. Friedman, Alschuler & Sincere were the architects.

This garage, located opposite the City Hall on La Salle St. was intended primarily for short time parkers. In actual operation since last October, this premise has been confirmed with 64% of the parkers remaining for 1½ hours or less. Its proximity to several hotels in the Loop also makes it convenient for many overnight parkers.

• **Monthly parking**—At first, no monthly rental rate was set. Recently, however, the operator requested that such a rate be established so that regular all-day parkers might be attracted to supplement the high percentage of short-term parkers now using the garage.

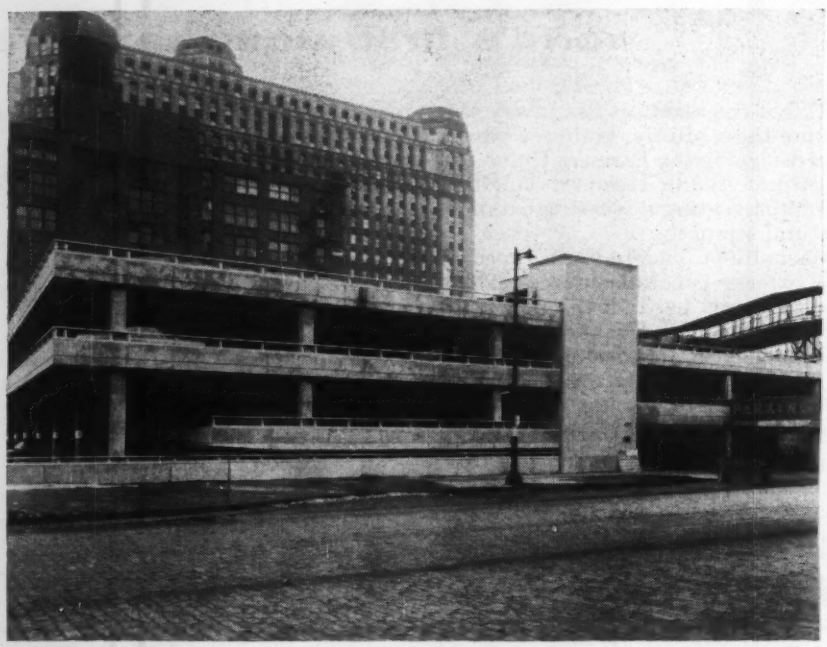
Garage No. 9 is part three-level and part five. It is a ramp-type split-level structure, completed in January of this year and accommodates 650 cars. Cost of land, plus structure, was $1,630,000. Designed by Graham, Anderson, Probst & White, this is the only garage with all direct access stalls for self-parking.

Located on La Salle St. just north of the Chicago River, entrances and exits are provided on both the upper and lower street levels. Because this garage is near the Merchandise Mart and adjacent to the new City Office Building, which will house the Traffic Courts when opened this fall, estimates indicate that over 50% of the parkers will take advantage of the monthly rental.

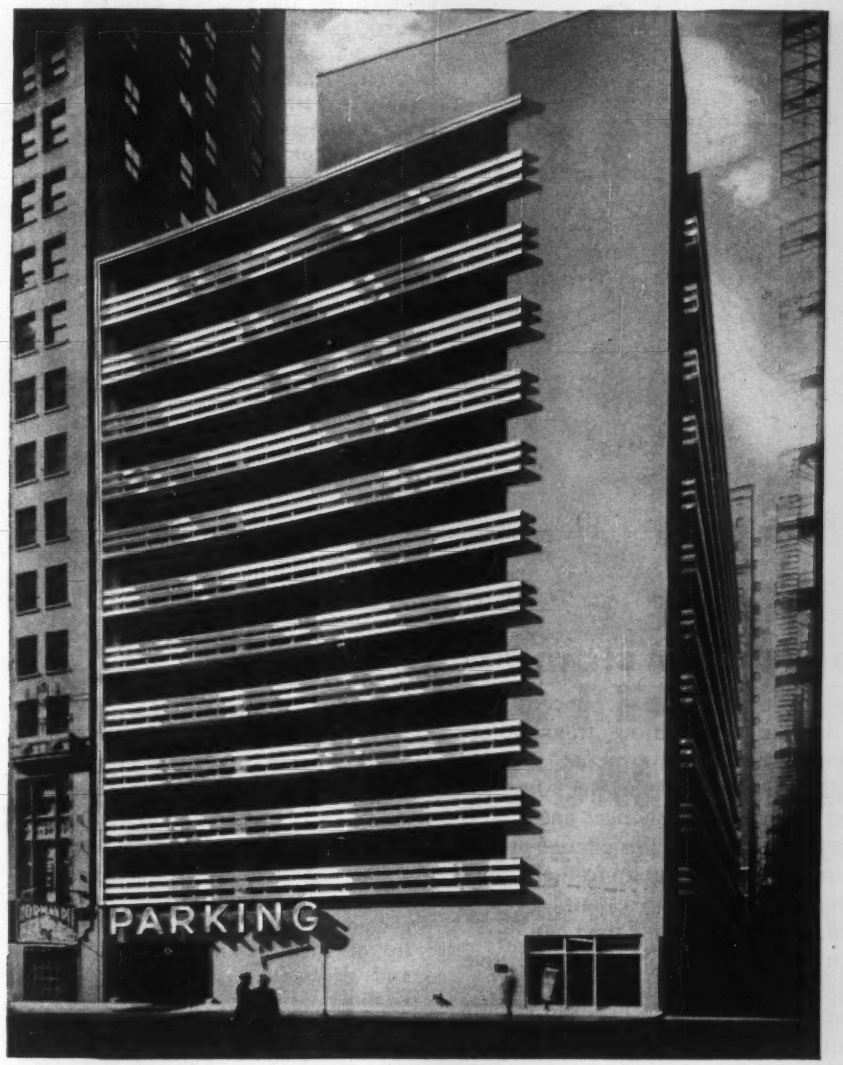
• **The smallest**—Garage No. 10, the smallest building in the program, is a ramp-type split-level structure with four parking levels designed to accommodate 262 cars. The cost of land and structure is $662,000. Jensen & McClurg were the architects. The garage was completed and opened for operation in February. Located at Grand and St. Clair, it serves hotels, office buildings and shoppers in the north Michigan Avenue area.

• **Comparative costs**—As shown in the accompanying table the construction cost-per-car, exclusive of the cost of the land, varied from a low of $1,300 to a high of $2,400. It would seem that in the hoist-type garages the storage capacity and height of structure had little effect on the construction cost-per-car. Garages Nos. 1 and 5 each cost $2,310 per car-parking space although one is a 14-level structure with a capacity of 715 cars and the other has 8-levels for a total capacity of 420 cars.

In the ramp-type garages, however, those having the largest capacities, also had the lowest construction cost per car. This didn't hold absolutely true but it is to be noted that Garage No. 4 with its 1,000 car capacity had the lowest construction cost-per-car of $1,300. Second lowest at $1,370 per car is garage No. 2 with a capacity of 1,230 cars and third lowest at $1,530 per car is the 1,206 car garage No. 6. And finally, garage No. 7



RAMP-TYPE GARAGE No. 9, on North La Salle St. near the Merchandise Mart (background) can park 650 cars on its 3-level and 5-level parking areas.



City of Chicago
Department of Public Works
Bureau of Engineering
Parking Facility No. 8

Consulting Architects and Engineers:
Friedman, Alschuler & Sincere
General Contractor:
A. L. Jackson Company, Chicago
Architectural Aluminum Fabricator:
David Architectural Iron Works, Inc., Chicago

The ad above, using an architect's rendering, appeared in the August 5, 1954, issue of Engineering News Record. At the left is the building now completed.

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which has the smallest capacity (256 cars) has the greatest construction cost per car ($2,400).

The Herlihy-Mid-Continent Company is contractor for six of the parking structures, three of which have been completed. A. L. Jackson Company has completed one and has one under construction. The Crane Construction Company completed one garage, and M. J. Boyle & Company was the apparent low bidder for the tenth. Contracts include a bonus and penalty provision for specified completion of from $100 to $300 per day.

The acquisition of property and design and construction of the parking facilities is under the supervision of Public Works Commissioner George L. DeMent and Dick Van Gorp, chief engineer, of the Bureau of Engineering, Department of Public Works.

• **Leased operation**—When the parking facilities are completed, the operation of the facilities is administered by the Commissioner of Streets and Sanitation, Lloyd M. Johnson, through the Bureau of Parking. Leases or management contracts are granted to private firms which operate these facilities. The city, however, retains control over rates and requires high quality of service.

The parking fees established are comparable to those charged by private garages or lots in the immediate vicinity of each parking facility. Hourly and daily rates are fixed for every facility, and monthly rates for most garages.

The vigorous manner in which Chicago has undertaken this program to help solve its problems of parking and congestion has caught the attention of engineers and city officials throughout the country. A constant flow of visitors has come to Chicago to inspect the facilities completed and under construction and to discuss with city officials the elements of the parking facility program.

This parking facility program is only one phase of Chicago's battle on traffic congestion. However, supplemented by the construction of superhighways, designation of one-way streets, sterner enforcement of traffic laws, and improvement of mass transportation facilities, this program is expected to provide necessary relief.

Another important aid in solving the parking problem in the Loop area is the $8.3 million 2,360-car underground parking garage beneath Grant Park and Michigan Ave. between Randolph and Monroe (ENR Sept. 16, 1954, p.44). It is owned and operated by the Chicago Park District, and was placed in operation on Sept. 1 of last year.

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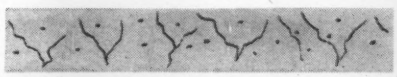
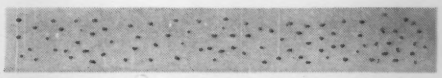
Wear Better, Longer . . . with Less Maintenance!

1. Greater Compaction Means Greater Density!

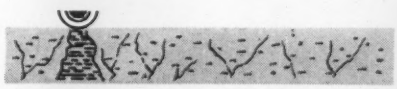


NOT THIS . . . Without salt, ingredients of the mix remain "loose." Clay binder cannot repel moisture. Excess rain makes rivulets. Dried out, they leave weakening crevices.



BUT THIS . . . With salt, you get better compaction. Brine film is thinner than water, allowing tighter bond of the whole mix. Clay, with brine, repels excess rain at surface. No rivulets. No weakening crevices.

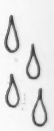
2. Greater Load Transference Means Longer Road Life!



NOT THIS . . . Unsalted road. Wheel of loaded truck puts a great weight on one point of surface. Roadbed supports load **vertically** . . . by only the structure directly beneath it.

BUT THIS . . . Salted road. Because of greater compaction, same load is diffused **horizontally.** Strain is spread outward and downward to about 40 inches at base to each surface inch.

3. All-Weather Resistance Means Lower Maintenance Costs!



EXCESS MOISTURE. Binding materials are not washed out. Clay, with brine, forms colloidal jelly. Repels excess rain, keeps it from weakening structural strength of mix.

EXCESS DRYNESS. Salt recrystallizes. Fills voids. Holds clay binder. Forms protective shield which retains some moisture in mix, resisting suction-like action of traffic.

FREEZING. Salt lowers freezing point. Frost does not penetrate. Prevention of below-surface freezing helps eliminate spring "heave" and pot-holing.

"Nature's own Soil Stabilizer"

For Base . . . Surface . . . and Shoulder Stabilization . . .

STERLING ROCK SALT

INDUSTRIAL DIVISION
INTERNATIONAL SALT COMPANY, INC., SCRANTON, PA.

FREE PAMPHLETS! Up-to-the-minute methods of highway construction and maintenance.

International Salt Co., Inc., Industrial Division, Scranton 2, Pa.

☐ Please send Road Stabilization literature.
☐ Please have representative call.

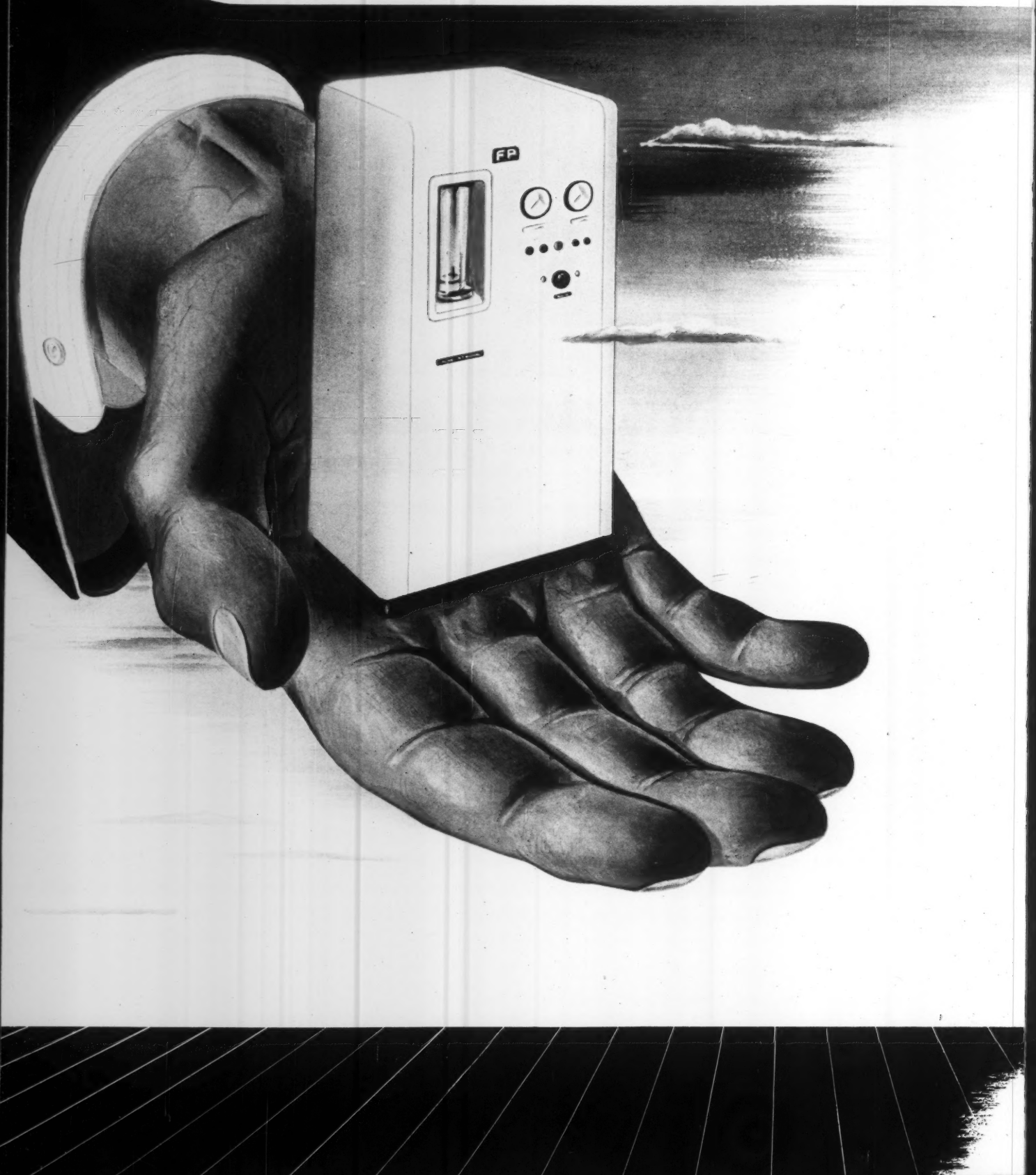
Name_____

Company_____

Street_____

City_____ Zone___ State_____

YOU'VE TRIED THE OTHERS AT YOUR EXPENSE
NOW TRY THE F&P CHLORINATOR



. . . AT MY EXPENSE

"Because there are so many good and valid reasons why our Chlorinator merits your deep consideration, I'm signing this advertisement. I am Kermit Fischer, President of Fischer & Porter Company.

Fischer & Porter Company has been in business since 1937, making chlorine control systems for all of the eighteen years since then. In 1949, after years of experimentation and development, we put our first 'packaged unit' chlorinator into service at Winter Park, Florida waterworks — where it has been operating successfully ever since. In May of 1952 we retooled our chlorinator production, incorporating into our basic design all the improvements made possible through the experience gained at Winter Park and some fifty other installations. Now there are more than 1000 of the new model F&P Chlorinators in daily use—and all our customers tell us it is the best chlorinator they have ever used.

HERE ARE SEVEN REASONS WHY I CAN MAKE THIS GUARANTEE OFFER TO YOU WITH CONFIDENCE . . .

1. SAFEST . . . The F&P Chlorinator is completely safe because it uses instantaneously operating mechanical instrument type safety devices. Any malfunctioning shuts off the chlorine supply instantaneously—but the chlorinator automatically starts operating again when the trouble has been corrected. There are no bell jars—exposed or otherwise—with water seals, so there are not the time delays these outmoded components introduce to the safety system.

2. MOST DEPENDABLE . . . Many F&P Chlorinators have operated for over a year at a time without being shut down for any repairs or replacement parts or for cleaning. Even connecting chlorine to the water inlet and water to the chlorine inlet did not faze one customer's chlorinator. After the connections were reversed, the chlorine system sucked itself dry and the chlorinator started up automatically.

3. MUCH LOWER FIRST COST . . . Simplified design, mass production methods, *mechanical* principle of operation, modern instrument engineering, make it possible to supply the new F&P Chlorinator at far lower first cost than the old hydraulic bell jar chlorinators.

4. MUCH LOWER MAINTENANCE COST . . . Not one, not a dozen, but *every* present user of F&P Chlorinators has stated unequivocally that the F&P Chlorinator cuts the maintenance bill to nil—whereas formerly maintenance cost was a major item.

5. NO CORROSION, NO SCRAPING, NO PAINTING . . . Because the cabinet is made entirely of fibre glass—without any internal metal bracing—it cannot corrode, does not have any paint or other finish coat to be renewed. *All* the internal parts are also completely resistant to attack by chlorine, by water or wet mixtures of the two so there is nothing to deteriorate, nothing to scrape, nothing to repair.

6. SIMPLEST TO OPERATE . . . The F&P Chlorinator is so simple that no skill is required either to operate or install. No foundation, no bolting. Just attach piping to the connections labeled 'chlorine,' 'water,' 'drain' and 'vent'—then turn on the chlorine and water valves (either one first) and you're off. Anybody can do it. Anything he does wrong (if he can find something wrong to do) simply shuts down the chlorinator.

7. PROVEN IN USE 1000 TIMES OVER . . . Sales of F&P Chlorinators have increased by leaps and bounds. Over 1000 present users are all saving money day in and day out.

These are provable and proven facts. We can give you every evidence you need of user satisfaction. But I still want you to make up your mind on the F&P Chlorinator, by actual test, *under your own operating conditions.*

All I ask is that you write to me now. Don't wait for repair bills or breakdown to start you thinking about better chlorination equipment. Merely tell me your chlorine capacity requirements, your ejector water supply pressure, your solution discharge pressure and I'll do the rest. You'll be under no obligation whatsoever. I stand on my faith in our Chlorinator. I know that it will win your enthusiastic support, that it will outperform any other chlorinator ever offered. All I ask is that you convince yourself—by trying it at no cost to you.

Will you write to me today—and ask me to prove what I say—*right in your own plant*—under your own operating conditions?"

Kermit Fischer

President.

complete process instrumentation

FP **FISCHER & PORTER CO.**

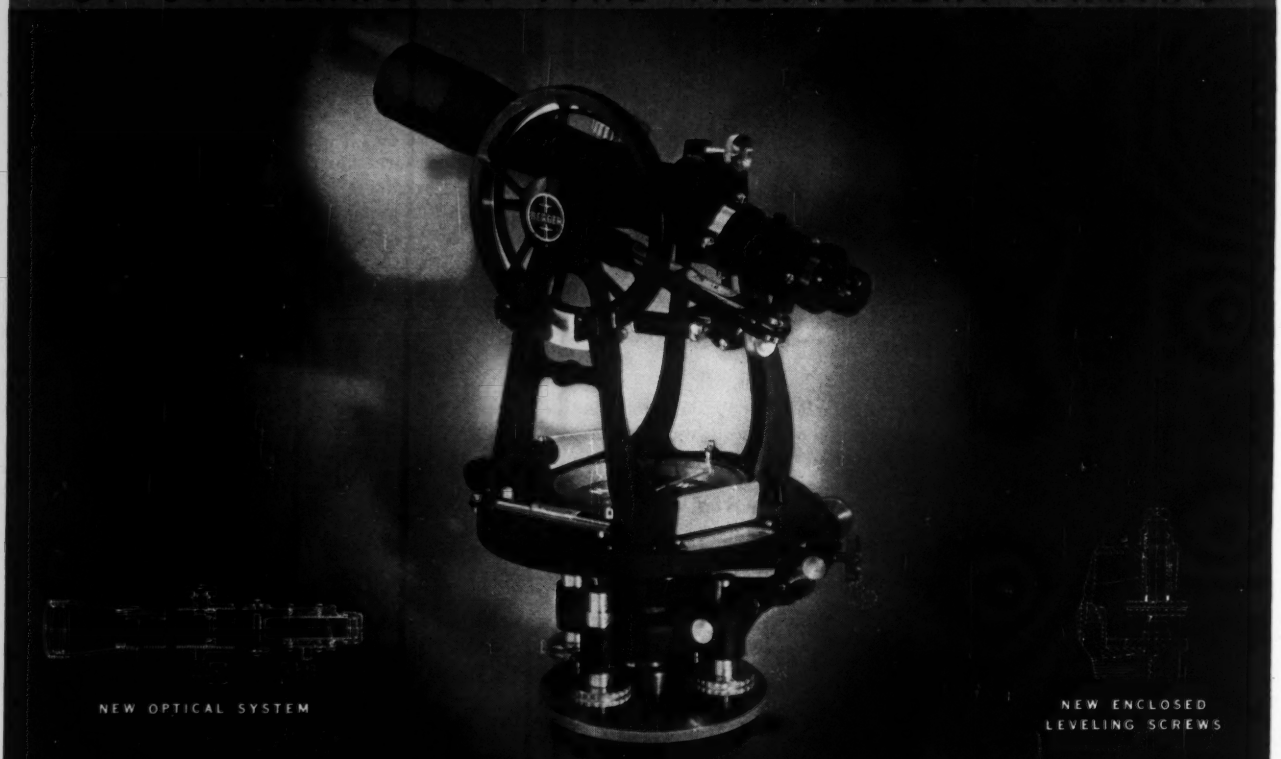
1765 Fischer Road, Hatboro, Penna.

18 YRS. EXPERIENCE SUCCESSFULLY MANUFACTURING CHLORINE FLOW METERING EQUIPMENT

A1014

Superb Achievement

OF 84 YEARS OF FINE INSTRUMENT MAKING



BERGER 1955 BRONZE TRANSIT

Every now and then a product is developed which renders inadequate such overworked words as "quality" and "improvement". The 1955 Berger Transit is just such a product. We believe it to be as fine an engineering instrument as expert design, skilled craftsmanship and superb materials can achieve.

You will observe, the first time—and every time you sight through its telescope—the clear, well-defined image —the precise stadia readings at greater distances made possible by its newly designed optical system. For example, the 6¼" Transit has a 26-power telescope with coated optics, a resolving power of 3½ seconds, effective aperture of 1.430 inches (36 mm) and field of view of 1 degree, 6 minutes.

Smooth focusing is assured by the use of an integrated rear bearing and eye piece mount; the object is easily brought into sharp focus with a negative lens actuated by a fine rack and pinion, and with a slow, even motion.

Fully enclosed nickel silver leveling screws are precisely fitted into replaceable bronze bushings. The newly designed circle guard provides greater protection for the vertical circle and permits easy reading of the vernier. Non-reflecting finish of the compass plate reduces glare. Reversion vial is *standard at no extra cost;* choice of spider web or glass reticle.

These features added to the many other advantages for which Berger Instruments are recognized the world over, make the 1955 model truly the "superb achievement of 84 years of fine instrument making".

For a lifetime of accurate, trouble-free surveying, put yourself behind this newest Berger Transit. Ask us for complete details.

C. L. Berger & Sons, Inc., 37 Williams St., Boston 19.

Engineers' Transits
Builders' Instruments
Levels
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THE BEST IN ~~SIGHT~~ IS BERGER

ENGINEERING AND SURVEYING INSTRUMENTS...SINCE 1871

STANDARD MASONRY EQUIPMENT is used in preparation and application.

Concrete-Rubber Flooring Is Flexible

A new concrete-type industrial flooring and construction material is said to "give" without cracking under heavy loads, dampen shock and noise, resist alkalies and mild acids, and have waterproof and non-slip qualities.

The material, called Lacticrete, is a combination of liquid rubber and a special cement powder. The rubber content reportedly makes it so flexible that when hard, a long, thin slab can be bent into a circle by hand. The rubber also gives the cured mix "bounce" and a tight bond that allegedly makes it resist breakdown under heavy use. Test patches in factories indicate virtually no wear after two years of high-volume traffic, the manufacturer states.

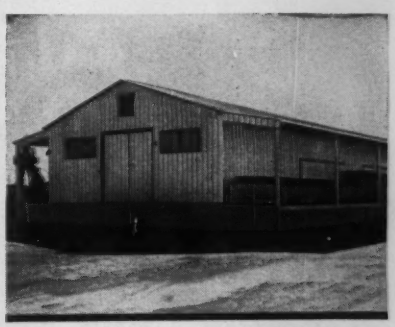
The concrete-rubber mix is a surface coating and can be used for repair work or in new installations. It has good adhesion to concrete, metal and even glass. According to the manufacturer, a ¼-in. layer, the suggested thickness to be used, will support heavy loads such as fork trucks when put down over a hard base.

Laticrete comes in two parts—the powder and a liquid rubber—and is prepared like regular concrete; standard masonry equipment is used both to mix and apply it. One of the few requirements in using it, is that it must be applied to a clean surface—dust, oil and other foreign matter prevent a bond to the base material. Otherwise it is handled like concrete or mortar and can be trowelled or buffed to give a smooth surface.

The test applications include repairing worn concrete floors, installing new floor toppings, cushioning pads for heavy machinery, protecting floors and equipment subject to chem-

MIXING is a simple operation.

There's a *Big* difference in steel buildings...



Butler die-formed, bolted panels stay tight—long after other types of sheeting and fastening have weathered loose.

take BUTLER all-bolted construction for instance...

Nothing holds like a bolt. It's the permanent fastener that lets you change your mind. Precision-built Butler steel buildings are 100% bolt assembled. Every bolt fits because every covering panel is precision-sheared and gang-punched at the factory. No field boring—no drift punching—no makeshift field tailoring. Specially treated bolts hold Butler die-formed panels in place for keeps—seal them into a climate-proof, pest-proof shelter. Bolts are just ONE important reason why Butler buildings are your best buy—priced at the lowest figure you can afford to pay for a quality building. Mail coupon for all the facts.

BUTLER

Manufacturers of Oil Equipment
Steel Buildings • Farm Equipment
Dry Cleaners Equipment • Special Products

Factories at:
Kansas City, Mo. • Galesburg, Ill. • Minneapolis, Minn.
Richmond, Calif. • Birmingham, Ala. • Houston, Texas

For prompt reply address office nearest you:

BUTLER MANUFACTURING CO.

7418 East 13th St., Kansas City 26, Mo.
918 6th Ave. S.E., Minneapolis 14, Minn.
1028 Ave. W, Ensley, Birmingham 8, Ala.
Dept. 18, Richmond, Calif.

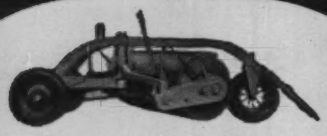
Please mail more information on Butler steel buildings.

Name_____

Address_____

City_____ State_____

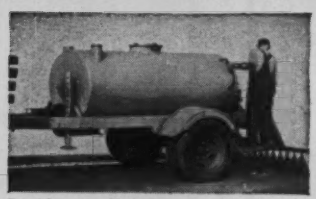
GRACE



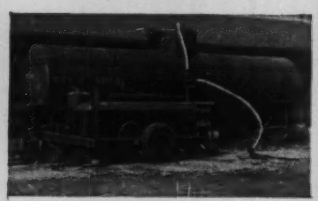
3 sweeper models, axle, engine or tractor powered.

Sheepsfoot Rollers 250 to 600 psi.

GRACE Asphalt and Compaction Equipment

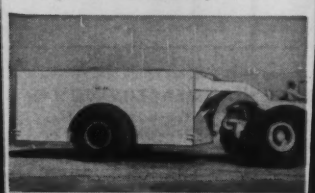


Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Rapid Fire circulating heaters heat and unload large tanks of asphalt.

Chip spreaders 8′ to 12′ width. Also asphaltic concrete spreaders.



Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.

6015 S. LAMAR, DALLAS, TEXAS

ical attack, putting non-skid surfaces on ramps used by fork trucks, waterproofing the interiors of storage tanks, patching damaged concrete walls, putting a noise-deadening layer on hard-surfaced floors, eliminating dusting conditions on floors in food and drug plants and also in hospitals.

Other laboratory and factory tests are said to show the rubber-based flooring has roughly the "bounce" of a hardwood floor and is about two-thirds as hard as concrete. From a strength standpoint, it will take compressive loads of 2,500 psi. Its adhesion to concrete is 300 psi, and it is also said to have adhesion to clean surfaces of steel, aluminum, brick, tile and glass. Adhesion to glass is 100 psi.

The light gray mix can be pigmented in a wide range of colors. Its cost is above concrete, but below acid-proof brick or tile. Both the liquid rubber and special cement powder are supplied by Naugatuck Chemical Div., U. S. Rubber Co., 1230 Ave. of the Americas, New York 20, N. Y.

Absorption Machines Make Chilled Water from Steam

Absorption refrigerating machines which have no major moving parts and produce chilled water from hot steam are now available for large-capacity air conditioning and process cooling installations in a range of eleven sizes from 100 to 700 tons.

The new type of absorption machines, which, it is said, will adjust automatically from full down to virtually zero load with little loss in efficiency, are designed to produce low-cost cooling wherever an economical source of heat such as natural gas is available.

According to the manufacturer, they are also highly suitable when a source of steam is already available from the heating boiler, as a by-product of a process using steam or from district steam lines.

Since the machine operates on low pressure steam, which may also be obtained from back pressure turbines or exhausted from various processing operations, it can provide chilled water

Shovel Converts to Horizontal Loader

A new loading attachment, called the Excaloder, adapts the Link-Belt Speeder LS-98 shovel-crane for horizontal, straight-line loading operations. The Excaloder is an attachment that is interchangeable with the shovel, hoe, dragline, clamshell or crane attachments and features exceptionally low overhead clearance—standard mast requires only 15 ft, 10 in. clearance height. An optional low mast has minimum clearance height of only 11 ft, 3 in. Maximum dumping height, with stick extended at 45 deg, is 16 ft, 11 in. and with stick retracted at 45 deg, is 11 ft, 4 in. The Excaloder is operated by the shovel's hydraulic controls. According to the manufacturer, the system permits complete control of the bucket, enabling the operator to obtain increased output with less effort. The operator can control the speed of dumping bucket and thus save wear and tear on truck bodies. Another time saving feature is that the bucket will close automatically when the dumping lever is released, or it can be retained in open position for grading by toggling control lever in fully open position. Link-Belt Speeder Corp., Cedar Rapids, Iowa.

for summer air conditioning or process chilling at little operating cost.

Due to its light weight and lack of moving parts the absorption machine can be installed on roofs without special reinforcing and bracing. Its vertical assembly reduces the amount of floor space required and installation at intermediate floor levels or in a basement is thereby facilitated.

If heating and cooling equipment are centralized on the roof through use of the absorption machine, maintenance is simplified and required piping, such as that for condenser water lines, can be greatly reduced. The large boiler stack running the height of the building can be eliminated also. CARRIER CORP., SYRACUSE, N. Y.

Swedish-Built Rock Drill Can Convert to Breaker too

The Pionjar rock drill is a new Swedish-built, gasoline driven tool which can be converted into a breaker.

The tool is powered by a gasoline engine, yet weighs only 86 lb fully equipped, and therefore can be carried into the field on the shoulder. A built-in, air cooled, single cylinder, two-stroke engine is used. It has a floatless carburetor which makes it possible to drill at an angle or horizontally.

Drilling speed in medium hard granite is reported to be about 16 in. per min. with a 1.06-in. diameter bit and approximately 10 in. per min with a 1.34-in. dia bit. Drilling depth is 13 ft and a continuous blower cleans the hole as it bores.

Specially designed hollow drill steels have been built to fit the Pionjar. These tungsten carbide intraset steels are available with plain or collared shanks and in all bit diameters and lengths. STANCO MFG. & SALES CO., 1931 PONTIUS ST., LOS ANGELES 25, CALIF.

Scaffolding Can Be Erected In Tight, Obstructed Areas

A development in rigid steel scaffolding is said to eliminate cross-bracing and small assembly fasteners and parts. The design reportedly simplifies installation and reduces erection manhours in obstructed locations.

Safety is provided by a double-slip-fitted lock that cannot be put together incorrectly. No tools are required for erection, and all eight standard parts can be passed through a 10-in opening. Further, they can be compactly stored.

All parts for a scaffold with single-pole construction, 28 ft high and 350 ft long can be loaded on a two-ton truck. SWISS FABRICATING INC., CAMP HORNE RD., PITTSBURGH 2, PA.

POWERFUL • RELIABLE • ECONOMICAL

This powerful turbo-supercharged Waukesha is a twelve-cylinder, 60-degree vee, even firing, four-cycle, solid injection, overhead valve, compression ignition Diesel, of 8½-inch bore and stroke and 5788 cubic inch displacement. The connecting rod arrangement is of the side-by-side type; opposing pistons operating from a single wide-area crankpin.

The turbocharged Diesel unit shown above develops approximately 1100 hp at 1200 rpm with radiator, fan, and air cleaners. Without turbocharging, the normal Diesel complete unit maximum rating is 800 hp. The propane-butane model of this V-12 series develops 870 hp. Bare engine ratings of all models are higher. Response to throttle and load requirements is quick and smooth, with a fast surge of reserve power for emergency and overload demands.

Tremendously powerful, remarkably rugged, this V-12 engine is designed for simplicity and reliability. Major parts are interchangeable between right and left cylinder banks. Main and rod bearings are easily accessible. Strength, precision and balance are built into all elements of the power train, from pistons to flywheel. Supporting members are designed for extreme rigidity and perfect alignment of moving parts.

Send for illustrated Bulletins 1663 (turbocharged)—1664 (normal Diesel)—1656 (gas).

266

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.
New York • Tulsa • Los Angeles

"What do you mean you can't get good prints?"

Don't expect the Blueprinter to produce sharp prints from poor tracings. Be sure! Switch to graphite-saturated

IMPORTED CASTELL

Wood pencil or Imported 9030 Lead and LOCKTITE Holder with new gun-rifled vice-like clutch. (pat. appd. for).

Picture of an indignant man who forgot that poor pencils produce poor tracings—and poor tracings produce poor prints.

Save yourself money and manhours by converting 100% to imported CASTELL, the drawing pencil that lays down more graphite on the line. CASTELL produces cleaner prints, many more prints than any other pencil. Giant aircraft plants have proved it with their own independent tests. Pennies more per pencil will save you many dollars, much irritation. Call your Dealer today.

A.W.FABER-CASTELL
PENCIL CO., INC. NEWARK 3, N. J.

MEN AND JOBS

AWWA to Install Amsbary as President

The American Water Works Association next week will install as its new president Frank C. Amsbary Jr., a vice president and director of the Northern Illinois Water Corp. of Champaign.

Long active in the high councils of professional organizations and a civic leader in Champaign, Amsbary was a victim of polio in his youth and since has walked only with the aid of crutches.

A high school athlete when he was stricken, Amsbary carried on with his public school studies and then went on to college. Summer vacations from college were spent working for a predecessor of his present firm, a company for which his father was general manager.

At 23, a year after obtaining his civil engineering degree from the University of Illinois, Amsbary became supervising engineer of the company (which changed its name later) operating plants in Sterling, Streator and Champaign. He became manager in 1927, vice president in 1940 and a director in 1954. His distinguished service in the water field led to a directorship in the Illinois Water Service Co. at the age of 36, appointment as secretary of the organization at 37 and vice president at 39.

• **A community leader**—There are few Champaign civic groups that have not felt the pressure of the Amsbary brand of working leadership. He is a joiner in the fine sense—and a doer, having held directorships in the local Chamber of Commerce (two terms), Rotary (three terms), Community Chest Association, Salvation Army, Champaign County Credit Men's Association and country club.

For 21 months of voluntary work as chairman of the Champaign County War Finance Committee, during World War II, he was cited by the U. S. Treasury Department for "distinguished service."

A familiar figure at working sessions of AWWA—both sectional and national—Amsbary has found time to deliver several papers at Illinois section meetings, three at national conventions and one each before Indiana, Missouri, Iowa and Florida sections. He has held almost every top administrative post at both levels, and in 1941 received AWWA's Fuller Award for distinguished service in the field of water supply.

F. C. Amsbary, Jr.

In addition to other activities, Amsbary has found time to enjoy two hobbies. A fondness for fine music accurately reproduced led him into the "hi-fi"-for-pleasure field 15 years ago. But his particular hobby is that of helping kids and he gets a great kick, for example, out of his long standing participation in the annual Christmas party, presented by the Salvation Army for children in Champaign.

New Organization Formed For Sanitary Engineers

A new organization, known as the Conference of Federal Sanitary Engineers, has been formed to bring together sanitary engineers in federal service. Its temporary president is Gordon McCallum, head of the water pollution control program of the U. S. Public Health Service.

Those eligible for membership are sanitary engineers on active duty as commissioned officers with the Army, Navy, Air Force or Public Health Service, or employed as civilians by any federal department or agency. Special memberships are available to inactive reserve officers and former employes.

The conference, which will plan regional meeetings and present annual awards, will seek solutions to mutual problems within the profession, and will cooperate with existing technical and professional societies. It will also support the proposed Intersociety Cer-

tification Board in Sanitary Engineering.

Membership applications may be obtained from Lt. Col. Alvin Meyer, secretary, 1701 S 78th St., Omaha 6, Neb.

Men and Jobs Briefs . . .

• **Associations**—The Asphalt Institute appoints **Charles V. Owen** area engineer in Kansas and Nebraska and assigns him the task of conducting studies relating to construction of the asphalt paving on the Kansas Turnpike . . . **H. F. Finck** of Brevard, N. C., is elected president of the Engineers Club of Western North Carolina . . . **George Demers,** Quebec City, becomes head of the Dominion Council of Professional Engineers.

• **Business** — Gebhard-Berghammer, Inc., Milwaukee, Wis., contracting firm, names **Herbert B. Mueller** vice president . . . **A. A. Lanna,** a former staff engineer with H. K. Ferguson Co., is promoted to assistant director of engineering by American Enka Corp., Enka, N. C. . . . **Albert N. Stubblebine,** recently retired from the U. S. Army, joins Johnson-Dunn Construction Co., Wilmington, Del., as acting vice president.

• **Careers**—The city of Tarboro, N. C., appoints **Capt. W. B. Howard,** USN, naval construction officer soon to retire from active service, as its city manager . . . **Clair A. Hill,** head of the Redding engineering firm of Clair A. Hill & Associates, and **W. Penn Rowe,** San Bernardino consulting engineer, are appointed members of the California State Water Resources Board . . . civil engineer **Alfred A. Schneebeli** becomes equipment engineer for the Pennsylvania Dept. of Highways.

• **Education**—**John W. Graham, Jr.,** civil engineering professor at Carnegie Institute of Technology, is appointed dean of students . . . **Ralph M. Watson,** director of research for Worthington Corp., is named associate dean of the L. C. Smith College of Engineering and chairman of the department of mechanical engineering at Syracuse University . . . **A. G. Farkas,** Roanoke design engineer, joins the civil engineering faculty of North Carolina State College.

• **Honors**—**Wesley W. Horner,** senior member of the St. Louis consulting engineering firm of Horner & Shifrin, receives the Achievement Award of the Engineers' Club of St. Louis. A pioneer in airfield engineering, expressways and water supply problems, he is a past president of ASCE and of the American Public Works Association.

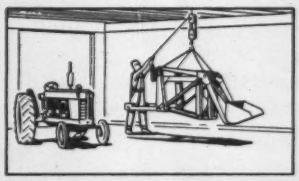
3 LOADER MODELS to meet your needs

BETTER ENGINEERED—BUILT FOR LONG, PROFITABLE SERVICE

1. SHAWNEE LOADMASTER

Like other Shawnee equipment, the LOADMASTER is a rugged, skillfully engineered machine. It is a heavy duty industrial-type loader with double acting, oversize hydraulic system. Raising height is sufficient to clear average dump trucks equipped with sideboards. Down pressure enables handling of hard-packed materials. Bucket capacity, ¾ yard. Available is snow bucket, 76 inches wide, capacity 1 cubic yard. For use on the Fordson Major Diesel Tractor.

FOR USE ON LARGE TRACTORS



Two-pin hookup means "EASY ON—EASY OFF"! To install the loader, drive the tractor under the loader, insert 2 pins and 2 bolts. It's On! Go to work. To remove, pull 2 pins, 2 bolts and drive out.

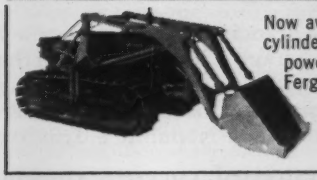
2. SHAWNEE "SPECIAL" LOADER

IDEAL FOR USE ON POPULAR MAKES OF WHEEL TRACTORS AND SMALL CRAWLERS

DOWN PRESSURE! 2000 LB. LIFT!

This model, like the Loadmaster, is of all welded construction and features a two-pin installation that makes possible removal in less than ten minutes. It has double acting cylinders throughout, and an oversize hydraulic system. Dumping height 9 feet. Heavy construction makes it a truly industrial tool. Ideal for installation with Shawnee backhoes and Shawnee Hydro-Clam.

3. SHAWNEE SPECIAL "HEAVY DUTY" LOADER



Now available—twin bucket cylinders optional for more powerful tractors such as Ferguson TO-35, Ford 800 and John Deere Crawler (shown).

FOR ADDITIONAL INFORMATION, WRITE SHAWNEE

NATIONWIDE SALES AND SERVICE

SHAWNEE MANUFACTURING COMPANY, INC.

1947 E TOPEKA AVENUE TOPEKA, KANSAS

Greater Value Per Dollar With WARREN-KNIGHT TRANSITS & LEVELS

29 Special and exclusive features of design and construction result in assured accuracy—ease and convenience in handling — lower maintenance costs — longer instrument life — time and money saved in use. All these, plus — a lower price and direct shipment from the Factory assures— THE GREATEST VALUE FOR DOLLAR OF INVESTMENT

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GUNITE dense—durable—high strength

PNEUMATICALLY PLACED CONCRETE

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Pile Protection
Stucco Coatings
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We are Gunite contractors and engineers of long, extensive experience covering many hundreds of jobs.
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Downtown Center Parking Garage,
San Francisco, Cal.
Cahill Construction Co., contractors
George Applegarth, architect

TRUSCON STRESSTEEL TENSIONING NEW DOWNTOWN CENTER GARAGE

San Francisco's handsome new 9-story "self parking" garage is 'quake-resistant thanks to the added strength of its supporting members placed in compression by Truscon Stressteel Tensioning Bars—a product of Republic's Truscon Steel Division.

Prestressed concrete construction not only increases strength, but cuts deadweight, saves materials and allows longer spans. And, Truscon Stressteel Tensioning Bars now make prestressing practical . . . make prestressed concrete construction completely competitive with other types.

The patented Stressteel principle utilizes alloy steel reinforcing bars of extremely high strength, together with suitable anchoring assemblies. These alloy bars are fully capable of carrying the sustained high stress necessary to prestress concrete, and to place it in a permanent state of compression.

Truscon Stressteel Units require no special skills, no special handling. Workers simply place them in the form, or in holes previously formed in beams and columns. The bars are tensioned

REPUBLIC STEEL CORPORATION
3114 East 45th Street • Cleveland 27, Ohio

Please send me more information on:

☐ Truscon Stressteel Tensioning Bars
☐ Toncan Drainage Products
☐ Republic Plastic Pipe
☐ Republic Mine Roof Bolts

Name_____ Title_____

Company_____

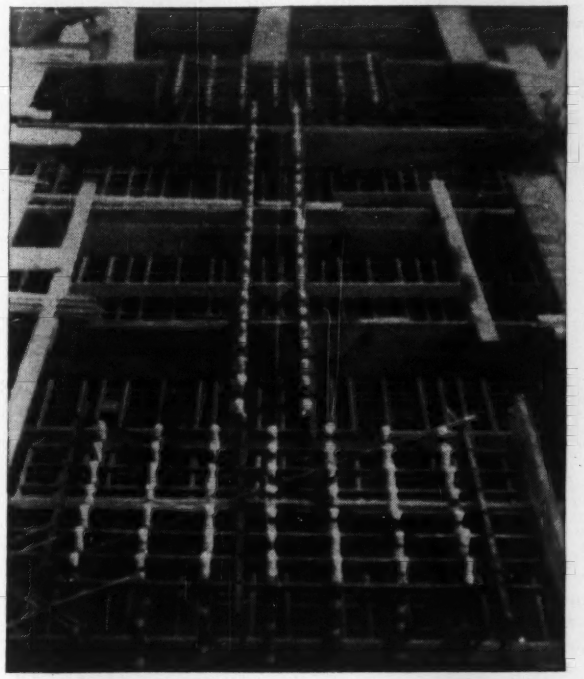
Address_____

City_____ Zone____ State_____

K-8550

REPUBLIC STEEL

Truscon Stressteel Tensioning Bars in place ready for concrete pour. Threaded ends protected by wrappings. After concrete has set, bars will be placed in tension by jacking and structure will be prestressed.



BARS HELP RESIST 'QUAKES

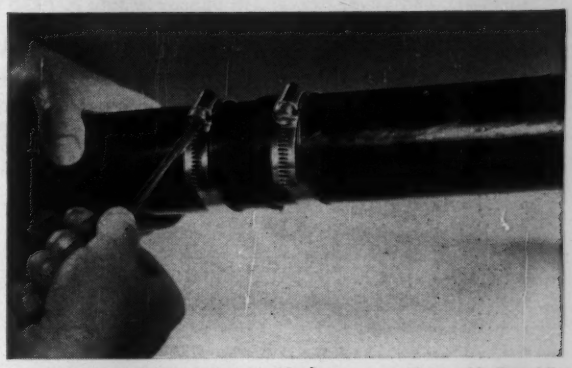
using hydraulic jacks. Depending upon length, Stressteel Tensioning Bars may be placed, stressed and anchored at the rate of 25 to 45 man-hours per ton of bars.

You can apply Stressteel advantages in bridges, building frames, dams, retaining walls, poles, piles, roof slabs, beams, bulkhead tiebacks, and to reinforce existing concrete structures. Write for more details on this interesting development, and for the Truscon Stressteel Manual listing applications, design data, specifications and procedures.

World's Widest Range of Standard Steels and Steel Products

REPUBLIC STEEL

REMEMBER REPUBLIC FOR MORE CONSTRUCTION PRODUCTS:



NEED TEMPORARY WATER LINES? No better way than with Republic Plastic Pipe. Use it anywhere. Just lay it on the surface, even around corners, pick it up later for re-use. Necessary connections are easily and simply made. Keep Republic Plastic Pipe handy on every job. Choose from three kinds: Flexible Polyethylene, Semi-Rigid Butyrate and Kralastic—all lightweight, tough and corrosion-resistant. Pipe distributors have them in stock for you.

PERMANENT DRAINAGE CALLS FOR TONCAN DRAINAGE PRODUCTS— Water runoff is efficiently handled by Republic Corrugated Metal Pipe Arch (above). It's made of Republic Toncan Iron, which contains both copper and molybdenum—is more rust-resistant than any other ferrous material in its price class. Toncan Drainage Structures resist the strains of shifting soil...resist the crumbling, cracking, spalling common to non-metallic products. It's lightweight and easy to assemble, easy to place. Names of Toncan Drainage Products manufacturers on request.

HIGH STRENGTH BOLTS COST LESS THAN RIVETS INSTALLED—Republic High-Strength Structural Bolts are faster, stronger and quieter than rivets. They don't need heating, so there's no fire and safety hazard. They're assembled with wrenches set at predetermined torques and the results are stronger, tighter joints. Bolts are made in accordance with ASTM Spec. A 325. Marked for easy identification to conform to Spec. for Assembly of Structural Joints, 2-27-54, Research Council on Riveted and Bolted Construction.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
July Materials, and Labor Prices, will appear in July 7, 1955 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots Gravel, 1½ in.	Gravel, ¾ in.	Sand	CRUSHED STONE Per ton, carload lots 1½ in.	¾ in.	CRUSHED SLAG Per ton, carload lots, f.o.b. plant 1½ in.	¾ in.	CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block Sand grav.	Lt. wgt. agg.	CONCRETE Ready Mixed 1:2:4; over. 50 c.y., del.
	Paper	Bulk	Mortar										
Atlanta	$3.97a	$3.56a	$3.40	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$12.25g
Baltimore	4.16a	3.75a	3.63	2.60‡a	2.60‡a	2.00‡a	2.75‡a	2.80‡a	2.65‡a	2.60‡a	.18	.18a	12.15
Birmingham	3.72	2.75e	....	2.53n	2.53n	2.08n	2.75	2.75	1.35	1.55	.165	.165	11.00
Boston	4.47b	4.11b	4.06	3.00a	3.00a	3.00a	1.60a	1.75a	.....	.....	.23	.265a	13.00h
Chicago	3.78a	3.32a	3.35	3.25‡b	3.25‡b	3.65‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	.23	.23b	12.50
Cincinnati	3.95c	3.55c	3.73	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	.....	.....	.18	.225a	11.60
Cleveland	N. A. in C. L.	3.34e	....	2.05‡f	1.85‡	1.65	4.10‡a	4.10‡a	3.35‡	3.15‡	.....	.22	15.05
Dallas	3.15a	2.85a	2.93	2.18	2.28	1.84	2.22	2.38	.....	.....	.11e	.267b	9.40
Denver	4.24a	3.94a	4.24	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255a	10.50
Detroit	3.78a	3.20a	3.54	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.21	.21a	12.60
Kansas City	4.10b	3.90b	3.90	1.65	1.65	2.00‡a	2.00‡a	2.00‡a	.....	.....	.20a	.24c	12.75b
Los Angeles	4.92ch	4.46ch	5.40	2.31a	2.51a	2.31a	2.16a	2.31a	.....	.....	.135fm	.245m	12.37lh
Minneapolis	4.20a	3.79a	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	.....	.....	.19i	.....	12.75f
Montreal	3.11d	2.86d	....	2.20o	2.20o	2.25o	1.90i	2.20i	.....	.....	.17	.17a	10.80ab
New Orleans	3.50a	3.20a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	.....	12.90
New York	4.26a	3.85a	3.63	2.85bk	2.85bk	1.90bk	2.70bl	2.70bl	.....	.....	.....	.....	14.65an
Philadelphia	3.73/4.12‡a	3.42/3.79‡a	3.58/3.63‡	2.85‡p	2.85‡p	2.35‡p	2.45‡	2.55‡	2.00	2.35	.22/.26	.....	13.20ao
Pittsburgh	3.75a	3.56a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.70/3.93c	3.25/3.51c	3.55/3.72	3.10am	2.90am	2.30/2.90am	1.60j	1.70j	1.50	1.50	.22	.28ci	11.90
San Francisco	3.83c	3.39c	....	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28cl	12.15e
Seattle	4.80a	3.55a	5.95h	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	.....	.....	.225f	.315f	13.30f
Toronto	4.00	3.77	4.00	2.25	2.25	1.85	2.00	2.00	2.00	2.00	.25	.35c	14.95

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a* Less 10¢ disc, 15 days. *b* Less 2% disc, 15 days. *c* Less 10¢ disc, 10 days. *d* Truckload lots, deliv. 10¢ disc, 20 days. *e* Truckload lots, destination price. *h* LCL.

SAND GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1–3 mi zone. *p* Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash *l* F.o.b. plant San Rafael. *m* F.o.b. yard

READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cy. brackets. *d* 1–3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *g* Less 25¢ disc, 15 days. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Federal tax included. Add 5% mun. & prov. *l* 1:2½:3. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.90†	Buffington, Ind.	$2.85†	Steelton, Minn.	$2.95†	Muskegon, Mich.	$3.00†	Toledo, O.	$2.90†
Clinchfield, Ga.	2.90†	Independence, Kan.	2.80†	Leeds, Ala.	2.75†	Saginaw, Mich.	2.90†	Milwaukee, Wis.	3.05†
Kingsport, Tenn.	2.90†	Hannibal, Mo.	2.85†	Duluth, Minn.	2.95†	Wyandotte, Mich.	2.90†	Green Bay, Wis.	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa.	2.90†	Hudson, N. Y.	2.75†	Buffalo, N. Y.	3.00†	Ironton, O.	2.90†
Nazareth, Pa.	2.90†	Universal, Pa.	2.95†	Alpena, Mich.	2.80†	Oswego, N. Y.	3.15†	Montreal City	2.58
Bath, Pa.	2.90†	Waco, Tex. (+ 10¢ tax)	2.85†	Detroit, Mich.	2.90†	Cleveland, O.	2.95†	W. Winfield, Pa.	3.00†

† *Prices to hold for second quarter of* 1955.

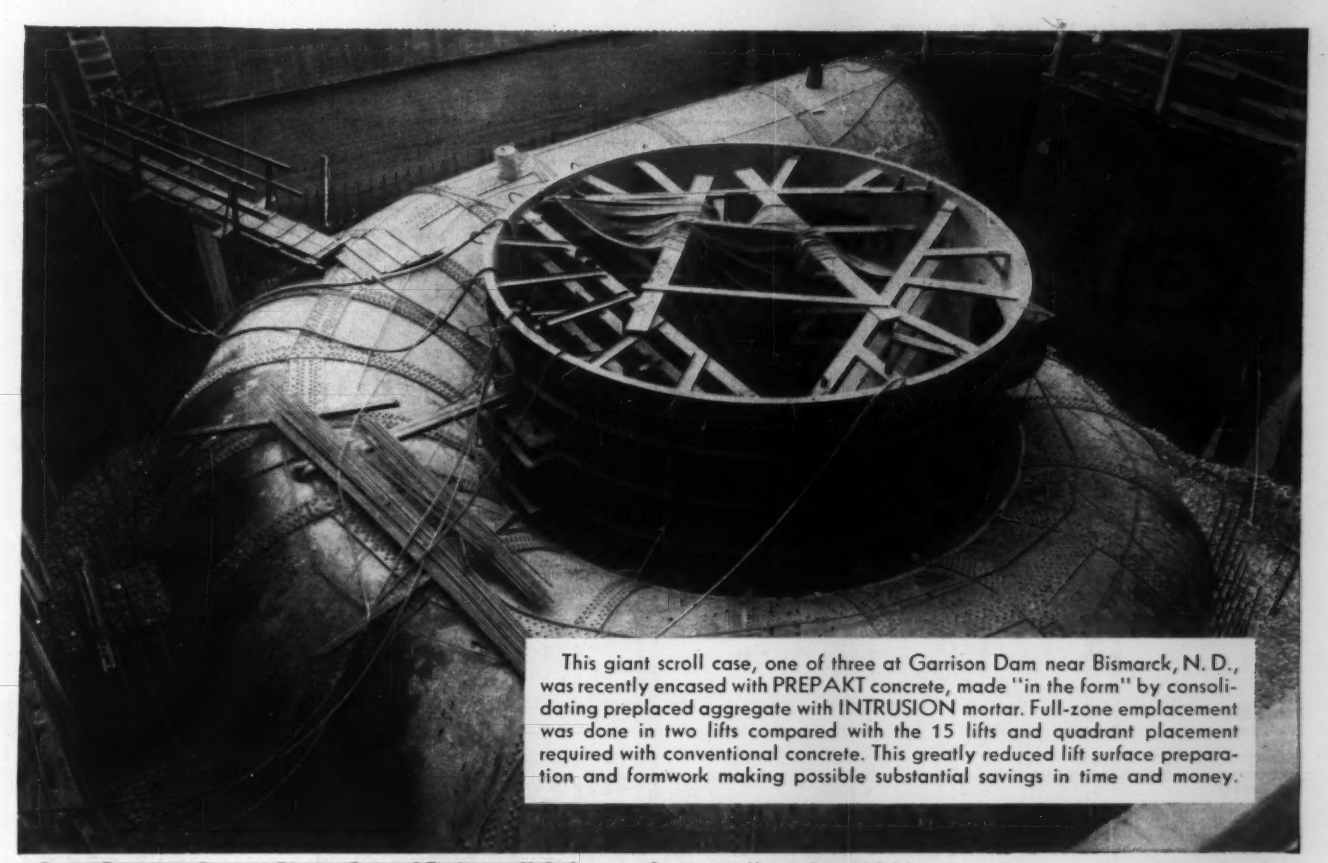
PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT MC Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION RSI Per gal. Tank car	Drums
Atlanta	.....	.....	.....	$26.00	$33.25	$0.115	$0.23	$0.125Fw	$0.27Fw	$0.15	$0.15	$0.25
Baltimore	150.00‡	75.00‡	.....	21.00i	.....	.085i	0.175i	.09iwH	.18iwH	.09i	.095i	0.185i
Birmingham	.....	57.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00a	23.00a	22.00av	22.00av	.09aF	.....	.10a	.145ae	.22ae
Chicago	155.00‡	85.00‡b	3.50/3.55‡j	19.85b	29.85b	18.85bv	28.85bv	.094bwH	.1740bwH	.0725b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	73.00d	5.03g	23.00A	.....	23.00A	.....	.1025awF	.....	.....	.1025Ae	.184e
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1950
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	104.00	.....	27.21	.....	27.21v	.....	.1188wI	.....	.0966	.....	.211
Kansas City	e	e	e	15.00cl	.....	17.50v	.....	.07awJ	.....	.055c	0.11	.....
Los Angeles	e	.....	e	16.00dmx	.....	16.00dwx	.....	18.00dxK	.....	17.00dy	.0825f	.1725f
Minneapolis	.....	.....	2.97h	23.70	.....	23.70	.....	0.10w	.....	0.10	.1025	.....
Montreal	e	e	e	27.00n	39.60n	.135n	.198n	16.50nuH	20.90nuH	.132n	.197ns	.289ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ew	....o	.085ew	....o	.085B	.085BL	.....
New York	.....	.....	2.75f	23.89qCD	44.32qD	22.89wtCD	43.57wtD	.1023wCDF	.1889wDF	.....	.1023CD	.1918D
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09uF	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00H	40.00H	.098	.11	.224
St. Louis	.....	.....	.....	18.76f	.....	.1704	.....	.0863wH	.....	0.1575	.10	.....
San Francisco	.....	67.50e	.....	17.50g	33.00gp	17.50gkv	33.00gkv	20.00gN	37.50gN	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	24.50K	.....	19.75hv	.085h	.095hv
Toronto	.....	.....	4.03	23.80	46.67	0.19	0.24	0.20w	0.25w	0.17	0.20	.24

‡ Delivered.

PAVING BRICK & BLOCK: *a* CL. *b* 3 x 4 x 8. *c* 2¼ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3" *h* 2" tr; 8¢ 3¢ treat. *i* 3 x 3½ x 8½. *j* 2½", 6lb. tr.

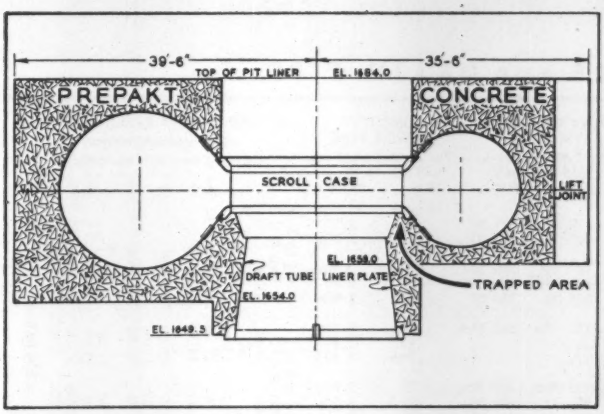
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. *A* F.o.b. refinery, Cleveland. *B* F.o.b. Destrehan, La. *C* Bulk. *D* Prices based on transporting to Manhattan via truck. *H* RC. *F* Also RC. *G* Also MS, SS. *H* RC 0-5 incl. *I* MC 4. *J* MC, RC .0675. *K* MC 3, 4 & 5. *L* MS. *M* MC 1-5, RC 1-5, .089. *N* MC 3. *P* Fob refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.



This giant scroll case, one of three at Garrison Dam near Bismarck, N. D., was recently encased with PREPAKT concrete, made "in the form" by consolidating preplaced aggregate with INTRUSION mortar. Full-zone emplacement was done in two lifts compared with the 15 lifts and quadrant placement required with conventional concrete. This greatly reduced lift surface preparation and formwork making possible substantial savings in time and money.

Owner-Engineers: Garrison District, Corps of Engineers, U. S. Army **Contractor: Kaiser-Perini-Walsh.**

Prepakt speeds encasement of turbine scroll case



PREPAKT placement methods eliminate the strain and distortion normally associated with conventional procedures. PREPAKT Concrete, with (1) no setting shrinkage, (2) 50% less drying shrinkage and (3) a low temperature rise, assures snug, all-around contact. Here, workmen are making connections for pumping of INTRUSION mortar. As mortar level rises, pipes are withdrawn, leaving a high-strength monolithic structure.

Diagram shows how PREPAKT methods and materials assure full underpinning support, even in the normally troublesome trapped area around the throat of the scroll (arrow). Completed job required some 2,700 cubic yards of PREPAKT concrete. Simplicity of technique made possible a speedier placement and considerable cost-savings.

Prepakt maintains a complete field construction organization, plus an engineering service and functions as prime or subcontractor. For further information, write: The Prepakt Concrete Co., Room 779-B, Union Commerce Bldg., Cleveland.

Intrusion and *Prepakt* are trade marks of Intrusion-Prepakt, Inc., whose methods and materials are covered by U. S. Patents Nos. 2313110, 2655004, 2434302 and others, also patents pending.

CONTRACTORS PREPAKT ENGINEERS

THE PREPAKT CONCRETE CO.
DIVISION OF INTRUSION-PREPAKT, INC.

MAIN OFFICE: CLEVELAND 14, OHIO
CANADIAN OFFICE: TORONTO, ONTARIO

CHICAGO • ATLANTA • SEATTLE • NEW YORK
PHILADELPHIA • SAN FRANCISCO • KANSAS CITY

JOHANNESBURG • PARIS • MADRID • ZURICH • BERLIN
STOCKHOLM • HELSINKI • LONDON • TOKYO • HAVANA

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING	STEEL RAILS Per Net Ton		TRACK SUPPLIES			
						Base	Standard	Light	Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$4.25	$4.225	$4.30	$9.25	....	$89.00	$107.00	$5.425	$7.30	$5.275	....
Chicago Area	4.25	4.225	4.30	9.25	$5.075	89.00	107.00	5.425	7.30	5.275	....
Pittsburgh Area	4.25	4.225	4.30	9.25	5.075	89.00	107.00	5.425	7.30	5.275	$11.50
Buffalo Area	4.25	4.225	4.30	9.25	5.075	89.00	107.00	5.425	7.30	5.275	11.50
Cleveland	....	....	4.30	9.25	5.075	....	....	....	....	....	11.50
Youngstown Area	....	....	4.30	....	....	....	....	....	7.30	....	....
Geneva	4.25	4.225	....	....	....	....	....	....	....	....	....
Los Angeles	....	....	....	....	5.075	....	....	....	7.30	....	....
Pueblo	4.30	4.70	4.75	....	....	....	95.00	5.425	7.30	5.275	11.50

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	Rail steel	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.08	$7.22	$7.22	$38.00‡	$42.00‡	
Baltimore	7.02	7.06*j*	....	42.00	45.00	
Birmingham	6.65	6.50*t*	6.50*t*	51.00*p*	57.00*p*	
Boston	7.49*s*	7.37	7.37	42.00	46.00	
Chicago	6.69	5.78*gu*	5.78*gu*	46.00‡	56.00‡	
Cincinnati	7.06*ak*	7.06*rv*	....	39.00*mn*	43.00*mn*	
Cleveland	7.02	5.76*c*	....	39.00‡	43.00‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	8.15	7.20*c*	....	48.00*n*	63.00*mn*	
Detroit	7.16	6.15*w*	....	50.50	60.50	
Kansas City	7.36*a*	7.18	....	43.50	47.50	
Los Angeles	7.55*fd*	7.05	....	52.00	58.00	
Minneapolis	7.05*d*	7.68*b*	7.68*b*	37.00	41.00	
Montreal	7.50–8.00*iC*/8.50–9.20*A*	6.65*i*	6.65*i*	46.00*h*	51.00*h*	
New Orleans	....	6.20*akz*	....	66.00	60.00	
New York	7.48	6.85*yaa*	6.85*yaa*	42.00*mn*	48.00*mn*	
Philadelphia	6.42	6.67	....	38.00‡	42.00‡	
Pittsburgh	6.69	6.92*z*	6.55	37.60	39.60	
St. Louis	7.09*r*	6.30*c*	6.30*c*	55.00*l*	56.00*l*	
San Francisco	7.50	6.85*j*	....	41.50	47.50	
Seattle	5.00*e*	6.55*cj*	....	51.00*w*	57.00*w*	
Toronto	8.00*	6.55	6.55	53.50*n*	66.50*n*	

Quantity extras, per cwt: under 100 ℔, +$6; 100–399 ℔, +$3; 400–999 ℔, +1.25; 1000–1999 ℔, +30¢; 2000–4999 ℔, base price; 5000–9999 ℔, −10¢; 10,000–19,999 ℔, −30¢; 20,000–29,999 ℔, −50¢; 30,000 ℔ and up, −70¢

EXTRAS, per cwt—*Quantity: less than 700 ℔, +50¢; 700–1499 ℔, +25¢; 1500–7999 ℔, +10¢; *Sizes: #2 +$2.20; #3, +$1.10; #4, +80¢; #5 +62.5¢; #6, #7, +45¢; #8, #9, #10 +30¢ *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job) *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70 *Design only: +60¢

‡ Delivered *a 2000–9999 ℔ *b 10,000–15,999 ℔, fob city *c 20 tons or over *d 10,000–19,999 ℔ *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4 ℔ per sq. yd. *r 2% off for cash *s 2,000–4,999 ℔ *t add 15¢ del. ‡u add 6.25¢ switch ‡v incl 15¢ del. ‡x add 5¢ switch ‡y add 30¢ del. ‡z add 10¢ del. ‡aa Prices beginning Aug. 1 based on Morrisville, Pa.; previously based on Sparrow Pt., Md. Decrease in freight costs due to switch in mill base offset mill price rise in July '54. ‡A American made. ‡C Canadian made. † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar. ‡* Aver. of Canadian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.*a*	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 8" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 8 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	.....	.....	$0.90*m*	$3.40*m*
Baltimore	121.50	1.45	2.42	.546	1.053	4.275*s*	11.3775	$178.20	$274.80	.99	2.70
Birmingham	103.00	1.45	2.42	.42	.75	3.30*r*	10.50*r*	260.00‡	400.00‡	1.25*m*	2.75*m*
Boston	122.00	1.47	2.20	.609*qrt*	1.1745*qrt*	4.815*qrt*	12.505*qrt*	187.80*r*	289.20*r*	1.54*mg*	3.65*mg*
Chicago	107.00	1.45	2.20	.77*m*	1.48*m*	6.25*m*	19.00*m*	150.00‡	270.00‡	.80	2.80
Cincinnati	108.00	1.47	2.29	.644*t*	1.242*r*	4.77*t*	12.1975*t*	225.00	350.00	.80*m*	2.95*m*
Cleveland	108.00	1.47	2.29	.546*r*	1.053*s*	4.32*t*	11.48	158.00*m*	245.65*m*	.85*m*	3.25*m*
Dallas	112.00	1.47	2.54	.439	.799	4.00*b*	9.17*b*	.....	.....	.49	1.60
Denver	115.00	1.53	2.54	.45*n*	.78*n*	3.48*n*	....	.....	.....	.74*m*	2.50*m*
Detroit	108.00	1.47	2.29	.80	1.50	5.95	16.40	212.00*m*	328.00*m*	.95	3.82
Kansas City	113.00	1.47	2.29	.56	1.00	4.13	11.20	250.00	480.00	.90	3.25*g*
Los Angeles	129.65*x*	1.58	2.20	.67*l*	1.46*l*	5.97*l*	14.89*l*	228.20*l*	348.90*l*	.95	2.75*f*
Minneapolis *w*	112.00	1.49	2.42	.76*mo*	1.38*mo*	5.70*mo*	....	.....	.....	1.38*h*	4.05*h*
Montreal	110.00	....	....	1.07*u*	1.78*u*	5.52*u*	8.93*u*	.....	.....	1.17*h*	3.11*j*
New Orleans	101.50	1.45	2.42	.483	.875	4.69	....	280.00*p*	460.00*p*	.65	2.29
New York	111.35	1.47	2.20	.68	1.30	5.12	13.50	.....	.....	1.15	3.00
Philadelphia	110.00	1.45	2.20	.65	1.25	4.95*v*	12.65*v*	300.00‡	350.00‡	1.60*h*	3.95*h*
Pittsburgh	110.00	1.47	2.20	.468*m*	.864*m*	3.86*m*	9.78*m*	152.00	244.00	1.05*h*	2.50*h*
St. Louis	112.00	1.45	2.29	.56	1.03	4.22	9.80	180.00‡	380.00‡	1.20*il*	2.70*il*
San Francisco	127.00	1.53	2.20	.74*d*	1.62*d*	6.59*d*	16.47*d*	235.00‡	392.00‡	1.05*m*	3.30*m*
Seattle	138.73	1.54	2.20	.51*b*	.91*b*	....	....	150.00*c*	.....	.85*h*	2.75*h*
Toronto	....	....	....	.76	1.425	5.70	....	157.00	280.00	.87	3.05

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob track *x 6 in. *y ss; add 20% for d.s.

	*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote Butt Weld Black	Butt Weld Galv.	Lap Weld Black	Lap Weld Galv.
Atlanta	34.25	17.00	17.00	25.50*a*
Baltimore	34.25	17.00	17.00	25.50*a*
Birmingham	33.25	15.00	16.00	24.50*ab*
Boston	34.25	17.00	17.00	26.50*a*
Chicago	34.25	17.00	17.00	25.25*d*
Cincinnati	34.25	17.00	17.00	24.25*d*
Cleveland	34.25	17.00	17.00	24.25*d*
Dallas	34.25	17.00	17.00	26.50*a*
Denver	34.25	17.00	17.00	25.25*d*
Detroit	34.25	17.00	17.00	24.25*d*
Kansas City	34.25	17.00	17.00	24.25*d*
Los Angeles	34.25	17.00	17.00	24.25*d*
Minneapolis *w*	34.25	17.00	17.00	25.25*d*
Montreal	34.25	17.00	17.00	24.25*d*
New Orleans	34.25	17.00	17.00	24.25*d*
New York	34.25	17.00	17.00	24.25*d*
Philadelphia	34.25	17.00	17.00	24.25*d*
Pittsburgh	34.25	17.00	17.00	24.25*d*
St. Louis	34.25	17.00	17.00	24.25*d*
San Francisco	34.25	17.00	17.00	24.25*d*
Seattle	34.25	17.00	17.00	24.25*d*
Toronto	34.25	17.00	17.00	24.25*d*

Mill: Lorain, Ohio; Aliquippa, Pa.; Sparrows Pt., Md.; Benwood, W. Va.; Youngstown, O.; Indiana Harbor, Ind.; Sharon, Pa.; Wheatland, Pa.; Etna, Pa.; Fontana, Calif.

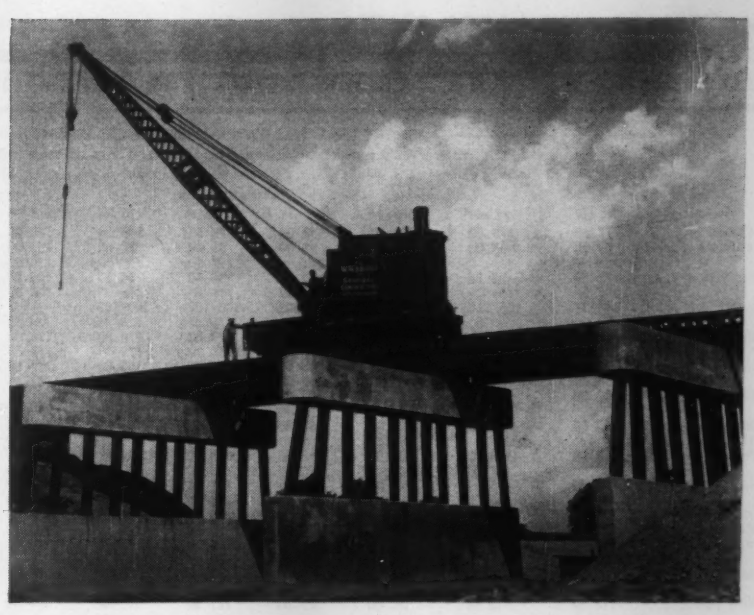
†Threaded and coupled. *a* 8 & 6 in. *b* Continuous weld. *c* 6 and 5 in. *d* 6 in.

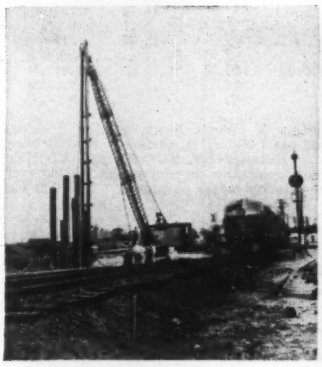
* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11¼¢; 1¼ in., 17¢; 1½ in., 23¢; 2 in., 27½¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

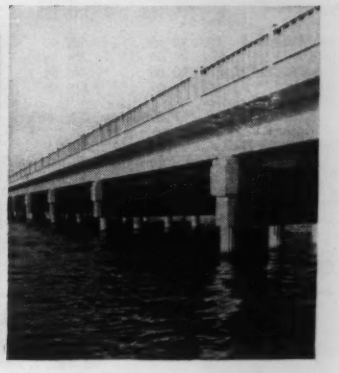
WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: *Butt Weld* — 1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 59.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

WITH *Monotube* *Foundation Piles*

...BIG SAVINGS IN BRIDGE CONSTRUCTION







WHEN you specify Monotube foundation piles for highway or railroad bridge construction . . . jobs go faster, costs stay low.

The tapered, fluted design of steel Monotube piles means faster driving. Monotubes are easier to handle and transport because of rigid, light weight construction. There's no need for special rigs or heavy driving equipment.

With a simple, single weld, Monotubes are readily extended to any required length, right on-the-job. Cut-offs can be used as extensions to eliminate waste. Monotubes are cold-rolled for added strength and long life.

Before starting that next foundation job, whatever or wherever it may be, remember, Monotube piles offer you specific advantages that pay off in sound construction and unusual economy. Write today for your copy of Catalog No. 81. Address The Union Metal Manufacturing Company, Canton 5, Ohio.

Monotube Foundation Piles

UNION METAL

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.
(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	12x12 Rgh	PLYWOOD Rail freight increment (See note for base price) ⅛"	¼"
Atlanta ††	$77.00	$79.00	$72.50	$73.00	$76.50	$80.00	$78.00	.....	.....	.....	.....	$22.32	$27.24
Baltimore *	87.00	92.00	85.00	85.00	90.00	98.00	105.00	.....	.....	$165.00	$180.00	25.92	31.60
	122.00g	*122.00g*	*120.00g*	*124.00g*	*124.00g*	*124.00g*	*130.00g*	*$140.00*	*$140.00*	.....	.....	.....	.....
Birmingham ††	83.50	85.50	80.50	87.50	90.50	95.50	105.50	.....	.....	120.50	165.50	21.78	26.58
	105.00	*105.00*	*108.50*	*108.50*	*108.50*	*105.00*	*105.00*	*109.00*	*109.00*	.....	.....	.....	.....
Boston *	99/107a	105/115a	100/102a	100/102a	100/102a	100/102a	.....	.....	.....	.....	.....	25.92	31.60
	90.00n	*90.00n*	*119/121*	*119/121*	*119/121*	*119/121*	*119.00*	*120.00*	*120.00*	.....	.....	.....	.....
Chicago **	99.00	102.00	95.00	110.00	118.00	119.00	114.00	.....	.....	142.00	142.00	22.45	27.37
	105.00	*105.00*	*116.00*	*117.00*	*117.00*	*118.00*	*125.00*	*125.00*	*125.00*	.....	.....	.....	.....
Cincinnati *	93.75	94.75	83.00	90.50	94.75	103.00	110.50	.....	.....	131.75	131.75	25.00	30.48
	100.75	*103.00*	*111.50*	*109.00*	*111.25*	*111.50*	*136.75*	*136.75*	*136.75*	.....	.....	.....	.....
Cleveland **	92.00	94.00	103.00	102.00	102.00	103.00	.....	.....	.....	.....	.....	25.37	30.93
	.....	.....	*118.00*	*110.00*	*110.00*	*110.00*	*120.00*	*120.00*	*120.00*	.....	.....	.....	.....
Dallas ††	72.00	78.00	68.50	68.50	73.50	65.50	136.50	.....	.....	127.50	134.50	18.72	22.80
Denver *	*Not in stock*		*121.50*	*122.50*	*122.50*	*122.50*	*125.00*	*137.75*	*140.50*	.....	.....	13.92	16.98
Detroit ‡	115.00	118.00	105.00	115.00	118.00	118.00	.....	.....	.....	.....	.....	25.00	30.48
	125.00	*125.00*	*130.00*	*130.00*	*130.00*	*130.00*	*165.00*	*165.00*	*165.00*	.....	.....	.....	.....
Kansas City *	125.00	125.00	120.00	125.00	130.00	*140.00*	.....	.....	.....	.....	.....	16.56	20.16
	130.00	*130.00*	*125.00*	*134.00*	*134.00*	*135.00*	*155.00*	*175.00*	*200.00*	.....	.....	.....	.....
Los Angeles 1	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*122.00*	*132.00*	*122.00*	.....	.....	16.61ab	20.25ab
Minneapolis #	*135.00*	*135.00*	*140.00*	*140.00*	*140.00*	*140.00*	*175.00*	*175.00*	*175.00*	.....	.....	19.89	24.25 j
Montreal ab	92.00	100.00	92.00	92.00	110.00	125.00	.....	.....	.....	105.00	105.00	.....	.....
	155.00	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*130.00*	*130.00*	*130.00*	.....	.....	.....	.....
New Orleans ††	100.00	100.00	92.50	85.00	90.00	94.00	118.50	.....	.....	150.00	148.00	18.72	22.80
†	*116.50*	*116.50*	*118.00*	*126.50*	*126.50*	*126.50*	*125.00*	*132.00*	*132.00*	.....	.....	.....	.....
New York 2	112.50	115.50	125.00	127.50	127.50	127.50	167.50	.....	.....	240/260	240/260	25.92	31.60
	.....	.....	*127.50*	*127.50*	*127.50*	*127.50*	*165/175*	*170/180*	*170/180*	.....	.....	.....	.....
Philadelphia ‡		Range from $115.00 to $135.00				115/135	115/135	.....	.....	210/220	210/220	25.92	31.60
		Range from $128.00 to $165.00				*128/165*	*133/155*	*155.00*	*155.00*	.....	.....	.....	.....
Pittsburgh †		Range from $105.00 to $107.00					120.00	.....	.....	120.00	130.00	25.92	31.60
	135.00	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*125.00*	*145.00*	*145.00*	.....	.....	.....	.....
St. Louis ‡	115/120	117/123	122/127	130/132	137/139	145/147	.....	.....	.....	.....	.....	18.72	22.80
	.....	.....	*131/137i*	*133/135e*	*133/137e*	*136/139e*	*198.00e*	*198.00*	*198.00*	.....	.....	.....	.....
San Francisco A †	*76.00*	*76.00*	*86.00*	*86.00*	*86.00*	*86.00*	*103.00*	*116.00*	*141.00*	.....	.....	12.22	14.91a
Seattle †	*76.00*	*76.00*	*76.00*	*76.00*	*76.00*	*76.00*	*82.00*	*87.50*	*87.50*	.....	.....	.....	.....
Toronto a	90.00	95.00	100.00	90.00	95.00	97.00	110.00	.....	.....	105.00	140.00	.....	.....
	110.00	*110.00*	*130.00*	*125.00*	*125.00*	*128.00*	*138.00*	*138.00*	*138.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8, 10, & 12 ft. lengths. *e* 8 to 16 ft. lengths. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *n* #3. A Rail freight rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅛", $170.00; on ¼", $191.00. Exterior ⅛", $190.00, ¼", $212.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1956a Single or Double Thickness A quality	B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
Atlanta	79%	80%	$0.2365	Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.: $1.75 per 100 lbs. higher in Canada.
Baltimore	78%d	80%d	.2365	
Birmingham	82%	83%	.1840	
Boston	75–10%	75–10%	.2365	
Chicago	74%	74%	.2365	
Cincinnati	76%	76%	.2365	
Cleveland	76–10–10%	76–10–10%	.2765	
Dallas	75%	75%	.2440	
Denver	77%	77%	.2415	
Detroit	74–10–10%	74–10–10%	.2365	
Kansas City	78–10%	78–10%	.2415	
Los Angeles	73%	73%	.2890	
Minneapolis	75–10%	75–10%	.2415	
Montreal	40–5%bc	40–10–5%b	21.35b	
New Orleans	78%	79%	.2415	
New York	80–10%	80–10%	.3975g	
Philadelphia	77%	79%	.2365	
Pittsburgh	80%	80%	.2090	
St. Louis	80–10%	80–10%	.2415	
San Francisco	63%e	70%	.2365	
Seattle	73%	76%	.2390	

Glass; *a* Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52. *e* Discount eff. 12/31/54.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Selemograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215–.229	.2415–.249
Rocky Mtn. States	.189 – .2015	.2215–.229	.2415–.254
Pacific N. W. States	.1865–.199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165–.219	.2365–.2415

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.88	.98
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.88/.98	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		8"x8"x8' Untr.	8"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Birmingham	Hardwood, Grade 3	$1.95a	$4.00a	Gv. 5 $2.55	$4.90a
	Grade 2	1.75	3.80a	" 4 2.40	4.70a
	Grade 1	1.45	3.40a	" 3a 2.10	4.50a
Chicago	Red Oak	....	3.20a	....	4.10/4.20a
New York	S. L. Sap Pine	2.00	4.00	3.00	5.00
	Mixed Oak	2.50	4.50	3.50	5.50
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	2.20	....	2.50	....
	Red Oak	2.10	2.65a	2.35	3.05a
	Sap Pine or Cypress	....	2.55a	....	2.90a
San Francisco	Douglas Fir	2.25ef	3.25ef	3.37bf	5.01caf

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7"x9"x8'. *c* Empty cell. *e* Green *f* f.o.b. cars.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. In quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$124.65	$124.65	$249.30	$280.45	.....	.....	$24.50	$26.50	.....	.....	.....
Baltimore	194.00	207.00	388.00	440.00	572.00	654.00	36.00*k*	41.00*k*	32.00	21.50	.....
Birmingham	126.00*p*	142.00*p*	253.00*p*	284.00*p*	354.00	438.00	25/26*ff*	30/31*gg*	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.25†	.....	.....	36.85*p*	39.85*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	26.00	28.00	31.00	27.00	.....
Cincinnati	205.00*j*	215.00*j*	295.00*jdd*	.....	.....	.....	45.00*j*	46.00*j*	27.50*j*	27.50*j*	.....
Cleveland	170.00**	181.00**	.....	.....	.....	.....	38.50	38.50	28.75	23.75	33.50*ee*
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	130.00	138.00	259.00	.....	315.00	360.00	37.50*cc*	38.50*cc*	34.00	30.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	29.25	32.00	27.50	28.50
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	27.50§	.....	34.00	34.00	35.00
Minneapolis	179.00*p*	199.00*p*	410.00*p*	199.00*pw*	.....	.....	40.00*p*	45.00	40.00*bbe*	30.00*bbe*	42.00*bbdz*
Montreal	165.00*aq*	181.00*au*	325.00*au*	230.00	248.00*s*	.....	39.50	46.00	34.80	22.00	13.75*u*
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	151.90*h*	162.00*h*	222.70*ch*	245.40*hn*	.....	.....	41.00	.....	36.00	34.00	.....
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	34/40	27.60	25.60	3.17
Pittsburgh	138.00	151.00	260.00	228.00	297.00	341.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	147.00*cc*	168.50*cc*	338.25*cc*	465.00*cc*	439.00	621.50	41.50*nl*	43.00*s*	.90*aaa*	.75*aaa*	1.10*aaspee*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	.....	.....	.....	39.50	.....	26.60	26.60	28.25
Seattle	223.00*cc*	230.00*cc*	320.00	240.00*ccw*	.....	.....	39.00*s*	49.00*s*	42.00*ahh*	37.50	3.90*mhh*
Toronto	138.70	148.90	273.75	222.00*f*	.....	.....	41.50	59.00	40.00	33.50	29.00

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *f* 8 x 8 x 12. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7⅛ x 7¾ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½x8x11¼. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$17.75	$28.275	$3.26	$3.51	$3.01	$2.95	$2.45	$2.45	$0.60	$55.00
Baltimore	17.50	27.90	2.75	4.25	3.35	2.42	3.73	3.73	.44	48.32
Birmingham	17.75	28.275	3.90	3.40	....	2.65	2.46	2.46	.75*ff*	35.46*ee*
Boston	17.50	27.90	....	....	....	2.98*qq*	2.82*og*	2.82*og*	.42*g*	50.50*g*
Chicago	17.50	27.90	....	....	....	2.91‡*u*	2.86‡*o*	2.86‡*o*	40.00‡*bbr*	50.00‡
Cincinnati	17.50	27.90	....	....	....	2.65	2.46	2.46	.50*y*	49.36
Cleveland	17.50	27.90	2.25*pgg*	2.45*gg*	2.58*gg*	2.65*q*	2.46*o*	2.46*o*	.40*y*	42.70*hh*
Dallas	17.75	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	58.50*hh*
Denver	18.00	28.40	3.29	5.15	3.04	2.65	2.46*o*	2.46*o*	.43*ff*	45.00
Detroit	17.50	27.90	2.35	3.25	2.50	2.42	2.31*f*	2.31*f*	.50	46.00
Kansas City	17.50	28.65	3.50	3.00*ys*	2.65	2.65	2.46*o*	2.45*o*	.40	59.00
Los Angeles	17.50	28.15	3.30*n*	4.50*n*	4.20*n*	3.10*n*	2.00*en*	*l*	.64*n*	*l*
Minneapolis	17.50	29.88/28.02	....	....	....	2.50*dd*	2.46*hidd*	2.46*hidd*	.44*idd*	44.00*r*
Montreal	.....	21.95	2.95*Dff*	4.05*Eff*	3.25*Fff*	4.00*t*	3.65*tf*	3.65*t*	1.06*kt*	3.30*k*
New York	17.50	27.90	....	....	....	2.65*G*	2.46*Go*	2.46*Go*	.44*Gz*	44.00*
Philadelphia	17.50	27.90	3.60	3.40/3.65	3.50/4.60	2.54	2.94	2.94	.37	26.00
Pittsburgh	17.50	27.90	2.68	2.85	3.15	2.75	2.60*o*	2.60*o*	.38	49.00
St. Louis	17.50	27.90	....	....	....	2.49	2.31*h*	2.31*h*	.38*y*	51.21
San Francisco	17.50	28.15	2.40	....	3.40	2.58	4.00*aa*	....	.41	....
Seattle	17.50	28.40	3.07*mcc*	2.93*mcc*	....	3.45*mcc*	2.91*hmcc*	....	.59*mcc*	52.00*mcc*
Toronto	.....	.....	....	....	....	4.00	3.65	....	.90	80.00

‡ Delivered. Note: Red lead in oil 50¢ higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll, 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. roll. *p* 6-drum, 50 gal. ea *q* Per 90-lb. roll. *r* F.o.b. factory, Chicago. *s* 466 Med *t* Federal tax included. *u* Per 90-lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement; Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt pitch in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D* Std. Black. *E* Ready-mixed. *F* Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drums. *G* Freight absorbed to destination not exceeding .35 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.85	$2.60	$2.75	$2.90	$2.90	$1.33	$1.33
Baltimore	3.20*d*	2.75	3.325*t*	3.10/3.25	3.075*t*	2.975	2.975*t*	1.675*t*	1.675*t*
Birmingham	3.25	2.50	2.925*k*	2.32	2.72	3.00	3.125*k*	1.375	1.475
Boston	3.35*r*	2.925*k*	3.325*t*	3.40	3.30*l*	3.13*R*	3.20*d*	2.22*Y*	2.22*Y*
Chicago	3.55*k*	3.30*r*	3.50*k*	3.15*m*	3.625*y*	3.53*f*	3.39*o*	2.50*k*	2.50*k*
Cincinnati	3.40	3.075	3.275*k*	2.925/3.175	3.10	3.28*N*	3.335*Z*	2.20	2.10
Cleveland	3.45*k*	3.325*r*	3.325*pk*	3.275	3.40	3.325	3.40*d*	2.575	2.575
Dallas	3.50	2.75	2.875	2.75	3.437	3.00	3.00	1.45	1.45
Denver	3.50	2.85	2.925*k*	2.78	3.375*t*	3.00	3.05	1.875	1.875
Detroit	3.58*re*	3.324*q*	3.475*P*	3.20*v*	3.49*dl*	3.655*H*	3.125*k*	2.55*v*	2.55*v*
Kansas City	3.625	2.85	3.00	3.045	3.325	3.18*o*	3.25*k*	2.105	2.13
Los Angeles	3.40	2.875*dz*	3.175*h*	2.72*d*	3.56*S*	3.20	3.35*v*	2.15*t*	2.15*t*
Minneapolis	3.325	2.90	3.07	2.85	3.10*d*	3.15*n*	3.00	2.15	2.15
New Orleans	3.175	2.60	2.975*m*	2.80	2.80	3.00*k*	3.00*v*	1.475	1.475
New York	4.15*br*	3.57*bJ*	3.975*p*	3.84*J*	4.15*A*	3.63*asF*	3.815*bL*	2.415*J*	2.415*J*
Philadelphia	3.92*i*	3.30	3.63*iM*	3.07/3.82*v*	3.625*S*	3.80*uv*	3.615*g*	2.025	2.325
Pittsburgh	3.625*k*	3.275*k*	3.225*k*	3.35*k*	3.375*k*	3.50	3.375*k*	2.125*k*	1.98*d*
St. Louis	3.62*c*	3.225*h*	3.225*k*	3.225*k*	3.25*k*	3.50*c*	3.39*E*	2.275*k*	2.275*k*
San Francisco	3.65*br*	3.005*v*	3.175*k*	2.835*v*	3.50*ak*	3.30*U*	3.35*K*	2.275*v*	2.275*v*
Seattle	3.40*d*	2.76*d*	2.95*d*	3.00*d*	3.25*d*	3.135*X*	3.26*T*	2.35*d*	2.35*d*
Montreal*†	2.00	1.80	1.90	1.70	2.00	1.90	2.05	1.25	1.25
Toronto**	2.558	2.392	2.34	2.08	2.496	2.60	2.444	1.30	1.30

* Cost of living bonus now included in basic wage. # Includes 5¢ hr tool replacement. † Plus 8% fringe benefits. ** Incl. 4% vacation fund.

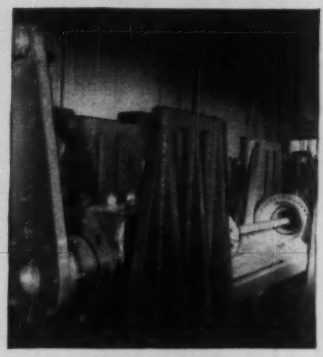
a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% for electricians plus 8¢ WF, 1% PF. *d* Incl. 10¢ H&WF. *e* Incl. 10¢ VF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF. *h* $2.725 homes & housing plus 7½¢ WF. *i* Incl. 17¢ WF. Incl. 10½¢ hr. WF. *k* Incl. 7½¢ hr. WF. *l* Incl. 4% VF. *m* Incl. 5¢ hr. WF. *n* Incl. 25¢ H, W, Ins., Vac. & Retirement. *o* Incl. 10¢ PF, 7¢ WF. *p* Incl. 3% WF, 3% PF. *q* Incl. 10¢ ins; 4% vac. and holiday pay. *r* Incl. 4% WF and 20¢ PF. *s* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t* Incl. 7½¢ H&WF. *u* Incl. 1½% PF. *v* Incl. 10¢ WF. *w* Negotiating. *x* 8½¢ incr. 6/15. *y* Incl. 22½¢ WF. *z* Incl. 7½¢ IF, 5¢ H&WF. *A* Incl. 15¢ WF, 15¢ PF & 20¢ B.F. *B* Incl. 3% WF. *C* Incl. 2½¢ H&WF. *E* Plus 6% WF, plus travel pay per day. *F* Plus $4 per day Annuity contrib. *H* Incl. 7¢ WF, 6% VF. *I* Incl. 15¢ H&WF. *J* Incl. 5% WF, 6 PH. *K* Incl. 10¢ WF, 12½¢ VF, 7½¢ PF. *L* Incl. 3% WF, 3% PF, 2% VF, 1% EF. *M* Incl. 7½¢ PF. *N* Incl. 1% WF. *O* Incl. 10¢ WF, 1% PF. *P* Incl. 10¢ hosp. ins.; 5¢ vac. *R* Incl. 12¢ WF and 1¢ apprentice. *S* Incl. 12½¢ H and WF. *T* Incl. 21¢ H, W & VF. *U* Incl. 7½¢ WF, 4% VF, 1% PF. *W* Incl. 2% VF. *X* Incl. 6¢ VF, & 7½ H & WF. *Y* Incl. 7¢ H & WF. *Z* Incl. 8½¢ WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Apr. '55	May. '55
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) Remachadores.	av. per hr.	1.37*	1.37*
Struct. Steel Shapes 3"–15" x 12 meters	per metric ton	1490.00	1490.00
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	1490.00	1490.00
⅜" x 11 meters	per ton	1490.00	1490.00
½" x 11 meters	per ton	1490.00	1490.00
⅝" x 11 meters	per ton	1490.00	1490.00
¾" x 11 meters	per ton	1490.00	1490.00
1" x 11 meters	per ton	1490.00	1490.00
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	69.00	72.00
Rose Gravel	per tr. load	62.00	65.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
3rd Class Pine	per M ft.	1000.00	1000.00
1st Class Pine	per M ft.	1600.00	1600.00
2nd Class Pine	per M ft.	1300.00	1300.00

* 1st & 2nd floors. Aver rate 4.38

ENR Skilled Average (Bricklayers, Carpenters, Iron workers): $3.227. **ENR Common Average** $2.059



"Torture-Testing" Builds Axles that can take it. In our indoor proving ground, we have concentrated every hazard of a million miles of driving. TDA axles prove themselves against tests like this one . . . where an axle shaft is twisted 14° backwards and forwards, 36 times a minute, for months on end. Other tests simulate a 3,000 mile uphill haul with a full load. Only tests this rugged could produce axles this serviceable.

HEAVY LOADS ARE PAYLOADS

...and exclusive Timken Inter-Axle cab controlled lockout at any speed!

Every heavy trucker has *two* big problems to lick. First, to deliver *more payload* faster. Second, to get the *most service* out of his equipment . . . with less maintenance costs, less downtime.

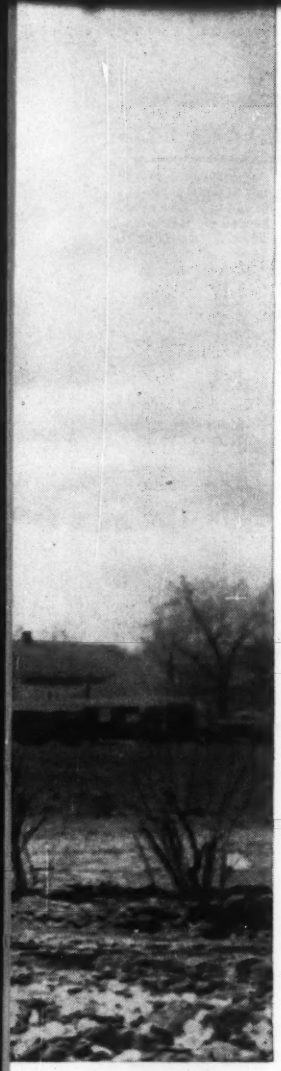
Timken-Detroit has spent 37 years developing the most helpful answer to heavy hauling! The TDA Tandem Drive Rear Axle Unit! The lightest, strongest, most serviceable unit of its kind ever produced.

Engineering is the keynote of TDA Tandem superiority. Unlike ordinary tandems, in TDA Straight Line Drive, propeller shafts form an absolutely straight line from the forward rear axle back to the rearmost axle. This permits smoother transmission of power, no noisy *around the corner operation.*

Other TDA Tandem design advantages give you longer trouble-free service, quieter, more economical performance, bigger savings on man and equipment time. Maintenance is easier, too. TDA design allows almost complete interchangeability of parts between four and six-wheelers. Solid benefits explain why TDA is the choice of manufacturers and operators everywhere.

How TDA Inter-Axle Differential cuts truck and tire wear! With cab-controlled lockout!

When tandem tires are mismatched... or when tandem trucks are going over rough grades . . . one set of wheels must turn faster than the other or be dragged. TDA Inter-Axle Differential permits either wheel to do this when necessary. Also, with TDA, the driver can, when necessary, lock out the differential and obtain a straight-through drive in mud or sand.



THREE TYPES: Hypoid-helical double-reduction, optional inter-axle differential. Worm drive, without inter-axle differential.

For six-wheeler operation . . .

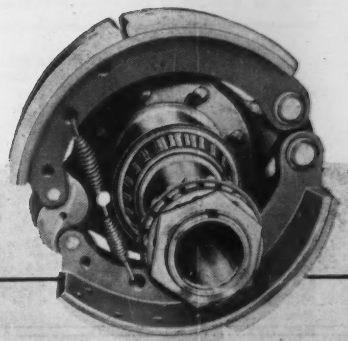
THE TDA TANDEM DRIVE REAR AXLE UNIT

Now—the *world's finest* tandem drive rear unit for heavy-duty motor trucks!

And with these features, developed, introduced and pioneered by TDA: (1) Available in 3 types of final drives and 3 capacities. (2) Top-mounted straight-line final drive eliminates propeller shaft angularity. (3) Optional inter-axle differential . . . spur gear design, cab-controlled power-lockout. (4) Torsion flow axle shafts . . . guaranteed for 100,000 miles or three years, whichever occurs first. (5) Hot forged steel axle housing . . . guaranteed for the life of the vehicle. (6) Unit-mounted "P" series power brakes . . . for longer life, greater economy and efficiency. (7) Cradle ride spring suspension and paralleled torque rod system . . . maintain correct alignment and weight distribution regardless of driving and braking conditions. (8) Exclusive two-piece trunnion tube bracket speed servicing. (9) Removable torque rod and spring guide brackets . . . for positive alignment, easier replacement. (10) Rubber torque rod bushings and rubber spring seat bushings . . . eliminate metal-to-metal contact. Require no lubrication.

WITH TDA TANDEMS

Differential that permits



TIMKEN Detroit AXLES

TIMKEN DETROIT AXLE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
DETROIT 32 MICHIGAN

The Accepted TDA Standard
TRADE MARK REGISTERED

World's Largest Manufacturers of Axles for Trucks, Buses and Trailers

Plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York • Ashtabula, Kenton and Newark, Ohio New Castle, Pennsylvania

ONLY TDA BRAKES give all these tested advantages!

- Brake shoes made of steel save up to 40 pounds per axle . . . give strong braking action with no distortion.
- Patented liner shape—thickest where wear is greatest.
- Liners riveted on—no chance of movement on shoe.
- Liners circle-ground to cover all efficient braking area of shoe.
- Rustproofed anchor pins locked in. Ends of pin sealed against foreign matter.
- First with self-aligning camshaft housings.
- Cam rollers heat-treated to roll smoother, wear longer.
- First with all-Nylon camshaft bushings.
- Compare similar products part for part and prove to yourself that TDA brakes incorporate the finest quality materials, skilled workmanship and advanced design.

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	GYPSUM PLASTER BOARD tapered edge per Msq ft ⅜"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	MINERAL WOOL INSULATION† 3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag a	GLASS FIBER INSULATION† 3" batts per M sf	ALUMINUM FOIL 60# Kraft 1 side foil per roll of 250 s. f.	ALUMINUM FOIL Expansible Blanket 2 layers foil per Msq. ft.
Atlanta	.....	$65.00	$45.00	$75.00	$75.00	.....	$75.00	$1.08	$75.00	$1.45[b]	$85.00	.....	.....
Baltimore	$47.00[f]	41.50[f]	31.00[f]	52.50[f]	63.00[f]	106.00[f]	67.00[f]	1.30	66.00	1.60	45.00	$4.00[g]	$33.50
Birmingham	67.00	56.00	46.75	75.00	68.50	116.00	67.50	1.32	70.00	1.60	75.00	3.48[g]	.....
Boston	48.50[m]	41.00[m]	31.50[m]	48.00[m]	64.00[m]	109.00[m]	79.00[m]	1.45	75.00	1.40	56.00	5.30	56.00
Chicago	67.00	50.00	41.00	57.00	80.00	117.00	75.00	1.60	84.00	.....	62.00[bb]	5.25	.....
Cincinnati	44.01[w]	38.08[w]	30.08[w]	45.81[w]	65.00[w]	110.00[w]	65.00[w]	.....	61.00	1.25	75.00	3.31	45.50[w]
Cleveland	50.00	50.00	40.00	60.00	70.00	111.00	70.00	1.35/1.50	75.00	2.20	60.00	7.76[d]	.....
Dallas	55.00	52.50	40.00	62.50	73.50	122.50	70.00	1.90	65.00	1.35	65.83	4.35	.....
Denver	60.00	52.50	40.00	60.00	72.90	123.00	71.90	.....	71.00[c]	1.30	50.00	11.00[r]	.....
Detroit	55.00	48.50	35.75	54.00	55.00[w]	93.00[w]	55.00[w]	.....	.....	1.95[b]	73.00	.....	.....
Kansas City	65.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	5.76[d]	.....
Los Angeles	57.50	50.00	0.31[s]	57.50	71.87	121.25	70.00	.....	80.00	1.35[s]	64.00	17.00[s]	25.40
Minneapolis	72.00	63.00	0.40[s]	65.00	70.00	114.00	70.00	1.30	78.00	1.30	78.00	6.50	.....
Montreal	60.00	52.00	39.00	53.00	60.00	.....	62.00	1.00	62.00	1.00	62.00	19.50[s]	49.50
New Orleans	65.00	50.00	45.00	65/70	65.00	100/115	70.00	1.95	79.00	.....	.....	15.68[w]	36.00
New York	50.00	44.50	34.00	51.00	67.00	108.00	66.00	1.55	69.00	1.90	72.00[i]	5.20	48.80[w]
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	.....	63/70	.....	70/75	5.50/6	34.50/44.50
Pittsburgh	65.00	55.00	40.00	68.00	65.00	103/105	60.00	1.80	70.00	1.80	70.00	4.10	.....
St. Louis	58.00	50.00	39.00	58.50	65.00	115.00	75.00	1.70	80.00	1.30	69.00	5.50	.....
San Francisco	49.00[e]	42.75[e]	0.33[s]	53.00[h]	58.00	94.00	60.25	1.60	72.00	1.55	72.00	4.70	52.00
Seattle	57.00	50.50	40.00	59.00	71.40	120.35	70.20	1.50[p]	81.00	1.65[s]	62.00[ee]	4.25[g]	.....
Toronto	61.00	50.00	40.00	64.50	75.00	.....	.....	0.90	47.00	.....	51.00	21.50[s]	67.50

[a] for hand packing [b] per 30# bag [c] carloads [d] 40# kraft paper [e] 56,000 sq ft up quantity [f] full trailer loads [g] 80# kraft paper backing [h] LCL [i] flameproof $75.00 [j] 133 lin ft; per 100 roll [k] plain core; asph core $56/M sq ft [l] 2-in: $52/M sq ft [m] 10 ton quantities [n] distributor's siding [o] per Msf roll [p] per sf [q] per cwt [r] per 35# bag [s] honeycomb, 1¼-in [t] fob city [u] per sq. yd. [v] 26# bag [w] 32# bag [ee] fob warehouse [bb] 2" [cc] in 250 sf rolls, of 16", 20", or 24" width

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER† Neat	PLASTER† Gauging	VERMICULITE† Home Insulation pellets	VERMICULITE† Plaster aggregate	VERMICULITE† Concrete aggregate[l] Treated	VERMICULITE† Concrete aggregate[l] Untreated	ALUMINUM SHEET[k] Flat[l] .102" th 36"x96" & 48"x144"	ALUMINUM SHEET[k] Corr roof .032" th 35"x12'	STAINLESS STL SHEET*-TYPE 302[p] 20 ga 48"x96–120"	STAINLESS STL SHEET*-TYPE 302[p] 28 ga 36"x120"	COPPER WATER TUBING-TYPE L 2000 ft lots per ft* ⅜"[b]	COPPER WATER TUBING-TYPE L 2000 ft lots per ft* ½"[o]
	per ton	per ton	per bag of 4 cu ft				per lb[t]	per sh[u]	per cwt[bb]	per cwt[mm]		
Atlanta	$29.00	$36.00	$1.45	$1.35	$1.50	....	$0.359[m]	$7.067[n]	$53.68	$61.18	$14.49[f]	$20.29[f]
Baltimore	21.50	32.00	0.95	1.15	....	$1.15	0.370	0.377[r]	52.75	60.25	0.1518	0.2129
Birmingham	36.00	43.00	1.55	1.55	1.75	....	0.389	8.148	54.18	61.68	0.1588	0.2230
Boston	21.00	.....	1.15	1.18	....	1.30	0.424[q]	23.60[ee]	52.00[dd]	57.50[dd][ff]	0.1588	0.2230
Chicago	24.60	24.60	1.45	1.50	1.50/1.60	....	0.418[o]	8.574[f][ee]	56.25[f][ee]	63.75[f][ee]	0.1588	0.2230
Cincinnati	25.00*	22.00*	1.75	1.75	1.85	1.75	0.408	9.72	56.30	68.30[ff]	0.1588	0.2230
Cleveland	26.00	40.00	1.25	1.32	1.40	....	0.369[oo]	7.569	52.00	59.05	15.88[f]	22.30[f]
Dallas	29.80	31.80	1.20	1.25	1.30	....	0.379	0.439[r]	55.50	63.00	0.1449	0.2029
Denver	24.00	24.00	1.40	1.30	....	1.50	0.389	8.339	54.07[ee]	61.57[ee]	0.1449	0.2029
Detroit	24.00	24.00	1.32	1.33	1.42	1.42	0.391	8.919	56.25	63.5	15.00[f][ee]	25.34[f]
Kansas City	30.00	35.00	1.20	1.30	1.40	....	0.389	8.79	56.77[ee]	64.27[ee]	15.88[f]	22.30[f]
Los Angeles	25.00	26.00	1.25[cc]	1.20[cc]	1.45[cc]	1.25[cc]	0.422	8.72	60.85	68.35	0.1588	0.2230
Minneapolis	31.00	31.00	1.30	1.60	....	1.80	0.425	7.68	57.01	69.01[ff]	0.1507[d]	0.2115[d]
Montreal	28.80	33.20	1.00	1.30	1.35	1.30	0.364	8.00	54.00	.....	0.206	0.22
New Orleans	35.00	37.00	1.50	1.20	1.25	1.25	0.359	0.366[aa][bb]	56.68	64.18	0.1449	0.2029
New York	23.00	29.00	1.25	1.20	1.40	1.30	0.402[f][oo]	8.30[f]	54.82	62.32	15.88[f]	23.30[f]
Philadelphia	23/25	32.00	1.35	1.35	1.35	1.40	26.50[f][mm]	7.55[f]	53.23[f]	60.98[f]	14.49[f]	20.29[f]
Pittsburgh	25.00	29.00	1.25	1.25	1.30	1.25	0.42	9.19	53.70	59.20	0.1518	0.2129
St. Louis	30.00	37.00	1.25	1.50[ff]	1.60[ff]	1.50	0.402[oo]	8.567[o]	53.14[bb]	71.14[bb]	15.88[f][m]	22.30[f][m]
San Francisco	24.00	26.00	1.05	1.03	....	1.24	0.416[rr]	8.14[cc]	60.65	68.00	0.1449	0.2029
Seattle	33.00	36.50	1.45	1.25[h]	1.65	....	0.359	7.067	60.50[ee]	68.00[ee]	0.1449	0.2029
Toronto	40.00	42.00	1.20	1.30	1.45	1.35	0.47	19.95	56.00	88.00	0.33[pp]	0.30[pp]

† truckiots, delivered * fob whse [f] delivered [aa] fob city [bb] ½" O.D. [cc] ⅝" O.D. [dd] 10M ft & over [ee] 2–10M ft; 10M ft & up; $0.1925/ft [f] per 100 ft [gg] 5 tons & up; cold roll, anneal & pickled; 2B finish [hh] 15M lb [ii] 3003 alloy; 1100 alloy: $0.456/lb [jj] 1100 & 3003 alloy, mill finish [kk] per bag of 3 cu ft [ll] treated has air entraining agent; untreated does not [mm] 2–10M ft [nn] fob plant, fr allow [oo] 5M lb & up [pp] 100 sq ft quantity [qq] 2M lb quantity [rr] per lb [ss] 36"x96": 10.81 lb/sh; 48"x144":21.7 lb/sh [tt] 19.31 lb/sh [uu] in 4M-lb skids; $0.296/lb in 1M-lb cases [vv] 48"x144" [ww] 36"x96" $13.25/sh [xx] 16M lb & up [yy] fob mill [zz] 26"x6–12' [aaa] add $0.75/cwt for boxing [bbb] 4 tons & up [ccc] 26 ga [ddd] add $2/cwt boxing; $0.75/cwt on skids [eee] Theoretical wt for 48"x96"; 50.4-lb, per sh. [fff] 300-bag lots [ggg] per 100-lb bag [hhh] mill shipment; add $2 per cwt for immediate del [iii] Theoretical wt 19.7-lb per sh [jjj] Deliv. warehouse means [kkk] ¼" O. D. [lll] Incl 10% sales tax

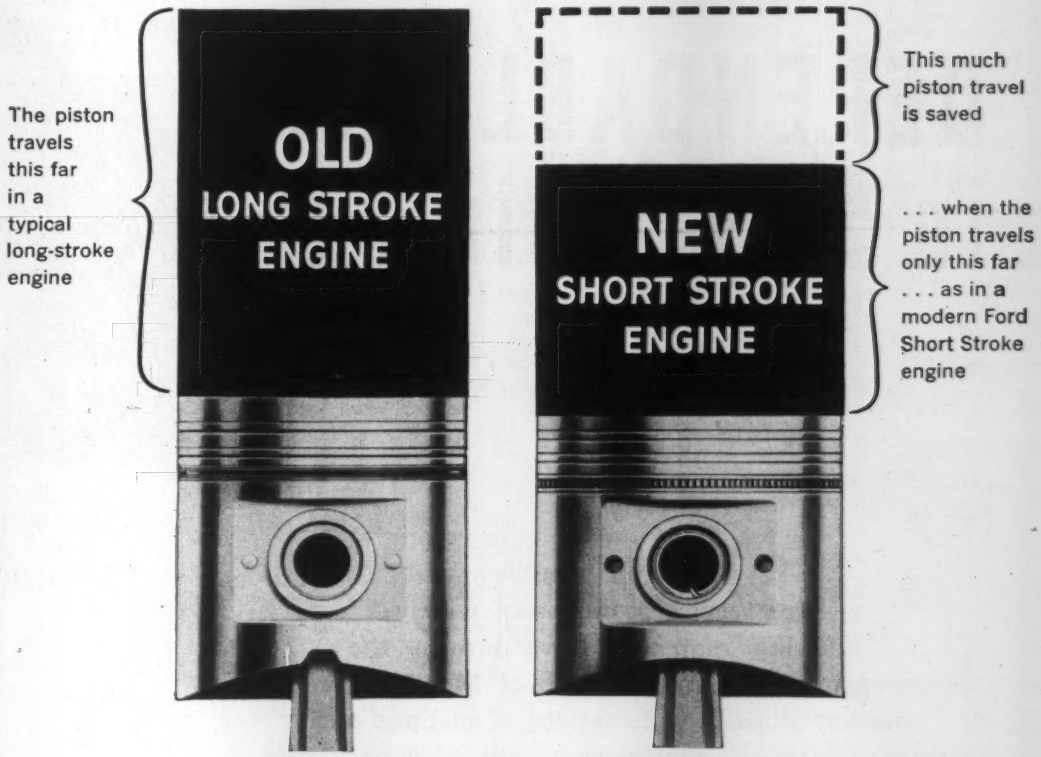
EQUIPMENT OPERATOR WAGE RATES

	Truck drivers 1½ T	Truck drivers —4 cy Dump	Truck drivers +4 cy	Tractor Operators incl bulldozers 34–49 hp	Tractor Operators incl bulldozers 70–100 hp	Tractor Operators incl bulldozers 100 & over	Tractor scraper 15–16 cy	Power cranes & shovels ½ cy	Power cranes & shovels ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	1.40	1.40	1.60	2.335	2.335	2.335	2.325	2.85	2.85	2.325	2.10	1.55
Baltimore	1.65[a]	1.80[a]	1.90[a]	2.45/2.60[b]	2.45/2.60[b]	2.45/2.60[b]	2.45/2.60[b]	3.10/3.25[b]	3.10/3.25[b]	2.45/2.60[b]	2.45/2.60[b]	2.25
Birmingham	1.59	1.85[ff]	1.92[gg]	2.46	2.46	2.46	2.60	2.60	2.60	2.46	2.185	1.525
Boston	1.94[f]	.....	.....	3.025[d]	3.025[d]	3.025[d]	3.025[d]	3.40	3.40	3.40	2.555	2.22[g]
Chicago	2.12[fff]	.....	.....	2.85[g]	3.00[h]	3.05[i]	2.85	3.30	3.30	2.95	2.95	....
Cincinnati	2.10[f]	2.20[fff]	2.30[fff]	2.85	2.85	2.85	2.85	3.10	3.10	3.10	3.10	3.10
Cleveland	2.42	2.42	2.42	3.15	3.15	3.15	3.15	3.40	3.40	3.15	3.025[h]	3.025
Dallas	1.45	1.45	1.45	1.45/2.625[j]	1.50/2.625[j]	1.50/2.625[j]	1.50/2.625[j]	1.50/2.625[j]	1.60/2.625[j]	1.50/2.625[j]	1.45/2.00[j]	1.45/1.55[j]
Denver	2.00	2.00	2.10	2.00	2.61	2.61	2.61	2.78	2.78	2.61	2.61	2.225
Detroit	2.31[o]	2.31[o]	2.31[o]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.30[m]	3.025[m]	....
Kansas City	2.065[s]	2.065[s]	2.14[p]	2.25	2.80[s]	2.80[s]	2.80[r]	3.045	3.045	2.66[s]	2.80[t]	2.19
Los Angeles	2.255[s]	2.255[s]	2.285[s]	2.80[m]	2.80[m]	2.80[m]	3.21[m]	3.03[m]	3.03[m]	2.94[m]	2.50[m]	2.41[m]
Minneapolis	2.15	2.15[s]	2.30[w]	2.53	2.75[s]	2.97[s]	2.75	2.97[s]	3.23[s]	2.53	2.42	2.25
New Orleans	1.575	1.575	1.575	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.15	1.575
New York	2.12¼[ee]	2.52[bb]	2.52[bb]	3.176[ee]	3.176[ee]	3.176[ee]	3.31[ee]	4.095[ee]	4.095[ee]	3.31[ee]	3.31[ee]	2.78[ee]
Philadelphia	1.825/2.025[s]	1.825/2.025[s]	1.825/2.025[s]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	2.89[m]	2.05[m]
Pittsburgh	2.125	2.125	2.125	2.875	3.125	3.175	3.175	3.275	3.275	3.175	3.175	2.125
St. Louis	2.20	2.20	2.20	3.225[s]	3.225[s]	3.225[s]	3.225[s]	3.225[s]	3.225[s]	3.225[s]	2.625[s]	2.20
San Francisco	2.10	2.10	2.33[w]	2.845	2.845	2.845	2.845	3.175	3.175	3.005	2.455	2.175
Seattle	2.405[s]	2.405[dd]	2.605[ee]	2.65	2.85	2.85	2.85	3.20	3.20	2.95	2.65[bb]	2.52
Montreal	1.25	1.25	1.25	1.63	1.63	1.63	1.63	1.89	1.89	1.63	1.70	1.50
Toronto	1.45	1.45	1.45	1.85	1.85	1.85	2.25	2.25	2.25	....	2.00	2.00

[a] incl 5¢/hr HWF [b] lower rates, straight time, other broken [c] 2-axle; 10-wheel $2.00; Euclid $2.20 [d] intermediate [e] bldg constr; highway $2.145 [f] less than 2-t [g] blade [h] scoop, bldg [i] scoop, road [j] plus $2 pd by employer for hosp. death benefits to family [k] bldg constr; steel constr $3.40 [l] higher rates are union, other taken from min wage scale approved by County Commissioners Court [m] incl 10¢ H&WF [n] flatbed [o] under 10 cy [p] over 10 cy [q] over 50 hp [r] blade grader [s] form and subgrade [t] single [u] incl 7½¢ HWF [v] up to 6 cy [w] 6–8 cy [x] cat oper [y] up to 3½ cy [z] 3½ cy & over [aa] applies to local 807 [bb] incl 3% WF 2% PF, 11 PH [cc] incl 5% WF [dd] up to 5 cy [ee] 5 cy & over [ff] 3 T but not incl 5 [gg] 5 tons & over [hh] excavating [ii] crane $2.10, heavy $2.30 [jj] Includes 12¢ H, W & PF

Look under the hood!

Something **NEW** is happening to truck engine design . . .


The piston travels this far in a typical long-stroke engine
OLD LONG STROKE ENGINE
NEW SHORT STROKE ENGINE
This much piston travel is saved
. . . when the piston travels only this far . . . as in a modern Ford Short Stroke engine

The big news in truck engines is modern *short-stroke design*. Piston rings last up to 53% longer. Engine friction is cut as much as 33%. You save up to 1 gallon of gas in 7. Only Ford has Short Stroke design in *every* engine—V-8 or Six—in *every* truck.

Save money on your job with a Short Stroke Ford T-800 BIG JOB. It's the payload leader of its class—takes as much as two tons more load than other tandem-axle trucks. New 42,000 lbs. GVW. Latest rubber-bushed suspension system, power divider drive. New 11,000-lb. capacity front axle and heavy duty front springs available. Power Steering is standard.

Differences between outdated long-stroke engines and Ford's modern Short Stroke design may seem small, but actually they're *not.*

In one case, for instance, Ford's stroke is shorter by 1⅔ inches. A small matter? This shorter stroke means 2,090 miles *less piston travel per year*—per piston—in an average year's driving of 11,000 miles.

Less piston travel means less friction . . . less wear. And that means lower upkeep costs, longer engine life, greater gas savings and more usable power.

Be sure your next truck has a modern short-stroke engine that will not be outdated at trade-in time. You *will* be sure if it's a FORD Truck. Because Ford *and Ford alone* gives you a Short Stroke engine in every model.

Ford Triple Economy Trucks

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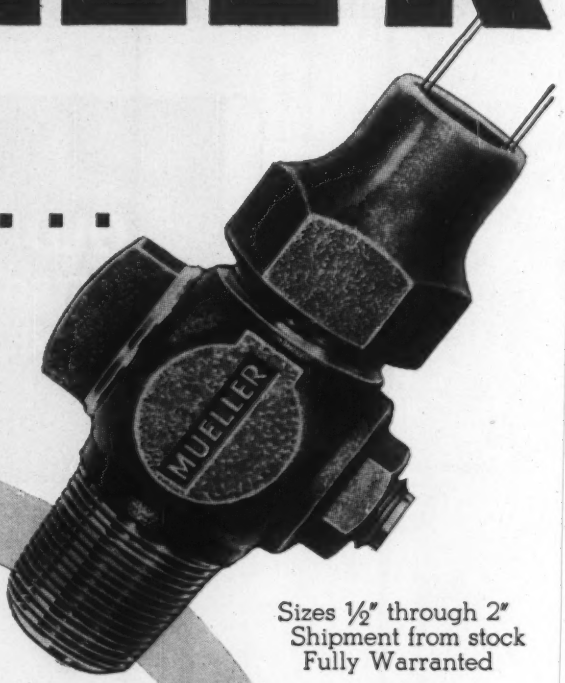
DEPENDABLE... in any main



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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 20 Connecticut

STREETS AND ROADS

June 14 Massachusetts June 17 Vermont
June 20 Connecticut

▲ **MASSACHUSETTS**—BA 6/21—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Millbury and Auburn—Contr. 51-082 hy. and bridge constr., $3,500,000. Plans deposit $10. CD 8/11.

▲ **Conn., Hartford**—BA 7/6—Bd. Contract & Supply of Metropolitan Dist., 115 Broad St., Zone 5, 800 ft. earth and rock fill Hogback Dam, 135 ft. high, with concrete diversion conduit, concrete spillway weir and rock channel, gate house, tunnel heading 2 mi. of road and other appurtenant structures, in Hartland on West Branch of Farmington River about 2 mi. north of Riverton and about 6 mi. north of Winsted, in towns of Hartland and Colebrook. Plans deposit $50. adv. ENR 6/9. CD 10/13/50.

▲† **Maine**—SPECIAL AAA FACILITIES—BA On Or About 7/7—U. S. Eng., 857 Commonwealth Ave., Boston 15, Mass., Special AAA Facilities (Sites L-13 L-31 L-58 L-85) vicinity of Limestone, $4,000,000. Plans deposit $50. CD 3/14.

BUILDINGS—BA

▲ **Mass., Cambridge**—LABORATORY—BA 6/14—Massachusetts Institute of Technology, c/o C. M. F. Peterson, 77 Mass. Ave., 5 story, birck, stone, 75,000 sq. ft. Karl Taylor Compton Laboratory, $3,000,000, Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y., archts. Severad Elstad Krueger, 415 Lexington Ave., New York, N. Y., structural engr. CD 4/14/55.

▲ **Mass., South Hadley**—SCHOOL—BA 6/16—Town, School Dpt., 38 Carew St., Senior High School, $1,750,000. Plans deposit $100, refundable. Extended date. Alderman & MacNeish, 594 Riverdale Rd., West Springfield, archts. CD 5/27.

BUILDINGS—SLC

▲ **Mass., Williamstown** — STETSON HALL — Williams College, James Phinney Batxer III, pres., Main St., soon lets contract 7 story, masonry Stetson Hall addn. $1,500,000. Cram & Ferguson, 248 Boylston St., Boston, archts. CD 2/1.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Metropolitan Dist. Comn., Parks Div., 20 Somerset St., Boston,
A. V. Taurasi Co., Inc., 135 Jacques St., Somerville, Mass. LB **$2,408,305,** est. $2,500,000. Proj. 900, grade separation and reconstr. hy. Thomas J. McGrath Hy., Squires Bridge to Cross St., Somerville. Bids May 26. CD 5/11.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston, Zone 15,
S. J. Groves & Sons Co., 19 Rector St., New York, N. Y. LB **$4,513,884.** Contr. No. 51-031, hy. and bridge, Otis and Blanford. Bids May 25. CD 5/2.

▲ **MASSACHUSETTS** — Massachusetts Turnpike Auth., 80 Boylston St., Boston, Zone 16,
Lizza & Sons, Inc., Oyster Bay, N. Y. LB **$3,463,180,** Contr. No. 51-021. hy. and bridge, Lee and Beckett. Bids June 1. CD 5/9.

BUILDINGS—LB & CA

▲ **Campanelli Homes, Inc.,** 186 Boden Lane, Natick, Mass. Separate Contracts. **$1,254,000.** 74 RESIDENCES, **Braintree Height, BRAINTREE, MASS.**

▲ **Campanelli Homes, Inc.,** 186 Boden Lane, Natick, Mass. Separate Contracts. **$1,680,000.** 140 RESIDENCES, HOLBROOK, MASS.

▲ **Martin Cerel,** 18 E. Central St., Natick, Mass. Separate Contracts. **$2,000,000.** RESIDENTIAL DEVELOPMENT, 150 units, adjacent to Lake Massapoag, SHARON, MASS. CD 1/5.

▲ **Felix Buzzi & Son,** 612 S. Main St., Torrington, Conn., LB, **$1,397,663,** HOSPITAL addn. and extensive remodeling, Spencer St., WINSTED, CONN. Litchfield County Hospital, Spencer St., Winsted, Conn. Bids May 25.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 12 Maryland June 24 Pennsylvania

STREETS AND ROADS

June 15 Delaware June 21, 23 New Jersey
June 23 New York June 24 Pennsylvania

▲ **New York**—BA 7/12—The Power Authority of State of New York, 270 Broadway, New York, Zone 7, electrical work at Long Sault Dam near **Massena,** St. Lawrence Co., Spec. No. PA-5-14031, St. Lawrence Contr. No. 18, Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. CD 8/18.

BUILDINGS—BA

▲ **N. J., Verona**—SCHOOL—BA 6/15—Bd. Educ. high school, Fairview and Grove Aves., $1,500,000. Lawrence Licht, 19 Knickerbocker Rd., Englewood, archt.

▲ **Md., Baltimore** — HOUSING — BA 6/16 — Baltimore Housing Auth., 709 E. Eager St., Zone 2, Proj. Md-2-19, slum clearance, demolition and clearing for Fremont Housing. Total est. $6,250,000. Plans deposit $10. Gaudreau & Gaudreau, 330 N. Charles St., Baltimore, Zone 1, archts. CD 4/13/53.

▲ **N. J., Burlington**—SCHOOL—BA 6/22—Bd. Educ., Burlington, Junior High School. $1,645,900. Mickle-wright & Mountford, 72 Ewing St., Trenton, archts. CD 6/18.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Poirer & McLane Corp., 33 W. 42nd St., New York 36, N. Y. LB **$5,106,936,** est. $6,614,000 elimination of New York Central and Lehigh Valley Railroads with various streets and the Erie Railroad in City of Batavia 2.33, 4.75, RR Rel. mi., PSC 5396, 5936 6500, 7685-7688, Genesee Co. (11 bidders). Bids May 26. CD 5/2.

▲ **General Electric Co.,** 1 River Rd., Schenectady, N. Y. LB **$1,528,800,** combined bid, **$606,975,** 115 kv units furnishing, del. power circuit breakers St. Lawrence Power Proj., Spec. No. PA-5-14021, St. Lawrence Contr. No. P17, NEW YORK. The Power Authority of the State of New York, 270 Broadway, New York 7, N. Y. Bids May 31. CD 5/11;
Western Electric Co., Inc., 195 Broadway, New York, N. Y. LB **$880,650.** 230 KV units for St. Lawrence Power Proj. (New York).

▲ **J. A. Jones Constr. Co.,** 209 W. Fourth St., Charlotte, N. C., **Charles H. Tompkins Co.,** 907 16 St. N. W., Wash., D. C. LB **$18,019,066.** regular bid constr. of Iroquois Dam near Point Rockaway St. Lawrence County, New York, Spec. No. PA-5-11011, St. Lawrence Contr. No. 11, NEW YORK. The Power Authority of the State of New York, 270 Broadway, New York 7, N. Y. Bids June 1. CD 4/15;
Peter Kiewitt Sons Co., 1024 Omaha National Bank Bldg., Omaha, Neb., **Arthur A. Johnson Corp.,** 347 Madison Ave., New York, N. Y., and **Al Johnson Constr. Co.,** Foshay Towers, Minneapolis, Minn. LB **$13,957,018.** alternate bid for St. Lawrence Contr. No. 11. (New York).

▲† **Morrison-Knudsen Co., Inc.,** 122 E. 42 St., New York, N. Y. and Peter Kiewit Sons Co., 1024 Omaha National Bank Bldg., Omaha, Neb. CA **$6,452,450;** est. $6,276,545 excav. 12,500,000 cu. yd. earth, central Long Sault Canal for 6 mi. canal, excav. 175,000 cu. yd. to constr. 20,000 ft., of dikes with 3,000,000 cu. yd. embankment, etc., 3 mi. north of Massena, St. Lawrence Co., CIVENG-30-25-55-53, NEW YORK. U. S. Eng., Niagara and Bridge Sts., Buffalo 7, N. Y. CD 5/5, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Public Constructors, Inc., Box 229, Pleasantville, N. J., CA, **$1,823,301.** grading, bridges, paving 1.073 mi. Route 42 (North-South Freeway) from U. S. Route 130 to Browning Rd., Gloucester City, Camden Co. Bids May 17, awarded May 27. CD 5/20, under LB.

▲ **Elmhurst Contg. Co. & Charles F. Vachris Co.,** 9024 Ditmas Ave., Brooklyn, N. Y., LB, **$1,777,000** concrete pipe (base); **$1,677,206,** steel pipe (alt.), Contract 10, South River Interceptor, NEW BRUNSWICK, N. J. Middlesex County Sewerage Auth., 103 Bayard St., New Brunswick, N. J. Bids May 27. CD 4/25.

▲ **PENNSYLVANIA**—Commonwealth of Pa.. Dpt. Hys., Harrisburg,
Pa.—Marsolino Constr. Co., 309 Fayette Natl. Bank Bldg., Uniontown, Pa., LB, **$356,960.** crushed aggreg. base with bit. 9,096 ft., widening existing roads, T.R. 119, North Union and Dunbar Twps., Fayette Co.; LB **$1,010,405** crushed aggreg. base with bit., 29,194 ft. portions divided, T.R. 119 Dunbar Twp., Connellsville City, Fayette Co.;
Pa.—Livengood Constr. Corp., R.D. 2, Walnutport, Pa., LB, **$1,869,017.** divided hy. 32,773 ft. of c. conc. each side of conc. or earth divisor, U. S. 22, Upper Bern and Tilden Twps., Berks Co.;
Pa.—Lawrence Sherbine, Box 66, Wilmore, Pa., LB. **$226,872,** crushed aggreg. base road with bit. 15,212 ft. LR. 24009 (3), Fox Twp., Elk Co.;
Pa.—D. F. & D. R. Farabee, Box 20, Amity, Pa., LB, **$166,739.** crushed aggreg. base with bit. 2,941 ft. one I-beam bridge, L.R. 52013 (1). Singlehouse Boro, Potter Co. Bids May 27. CD 5/6.

▲† **Tandy & Allen Constr. Co.,** 280 Hackensack Ave., Hackensack, N. J., LB, **$2,328,589,** hospital site imprvs., utilities, Dover Air Force Base, ENG-36-109-55-59, DOVER, DEL. U. S. Eng., 2653 Abbottsford Rd., Phila., Pa. Bids May 12. CD 3/2.

BUILDINGS—LB & CA

▲ **Country Village Homes,** c/o Trylon Realty Co., 98-89 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$3,700,000.** 206 HOUSES on tract on Old Country Rd. east of South Oyster Bay Rd., BETHPAGE-PLAINVIEW, N. Y.

▲ **Sutton Hills Homes, Inc.,** c/o Trylon Realty Co., 98-89 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$3,200,000.** 200 HOUSES on tract near Old Country Rd., BETHPAGE-PLAINVIEW, N. Y.

▲ **Turner Constr. Co.,** 420 Lexington Ave., New York 17, N. Y. CA Est. **$2,000,000.** 12 story printing PLANT 73-93 Sand St., BROOKLYN, N. Y. Watch Tower Bible & Tract Society, 124 Columbia Heights, Brooklyn 2, N. Y. L. Freeland Fellgraff, Ridgefield Park, N. J., archt. CD 4/20.

▲ **Berger-Tilles Projects,** 64 Division Ave., Levittown, N. Y. Owner Builds. **$3,000,000.** Inter County SHOPPING CENTER, incl. 35 stores, parking, on 20 acre tract, on Carmen Mill Rd., FARMINGDALE, N. Y. A. H. Salkowitz, 37-60 82 St., Jackson Heights, N. Y., archt.

▲ **Vermilya-Brown Co., Inc.,** 100 E. 42 St., New York 17, N. Y. CA Est. **$3,000,000.** 4 bldgs. to house OFFICES, LABORATORIES on 35 acre tract at Saw Mill River, GREENBURGH, N. Y. Geigy Chemical Corp., 89 Barclay St., New York, N. Y. Skidmore, Owings & Merrill, 575 Madison Ave., New York 22, N. Y., archts.

▲ **Turner Constr. Co.,** 420 Lexington Ave., New York 17, N. Y. CA Est. **$6,000,000.** Macy STORE in shopping center HEMPSTEAD, N. Y. Roosevelt Field, Inc., c/o Webb & Knapp, Inc., 383 Madison Ave., New York 17, N. Y. Bids May 10. CD 5/5.

▲ **W. J. Barney Corp.,** 101 Park Ave., New York 17, N. Y. CA Est. **$1,300,000.** 2 story TELEPHONE BLDG. on site bounded by Broadway 213 St. 214 St. and Tenth Ave., NEW YORK, N. Y. Robert S. Oinick, etc., 750 Kappock St., New York, N. Y. CD 8/25.

▲† **John A. Johnson,** 303 41 St., Brooklyn 32, N. Y. LB **$4,613,050.** (foreign steel). **$4,618,000.** (domestic steel). foundation and general contract for LaGuardia HOUSING Proj. NY 5-21 Sect. II in area bounded by

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings, $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listings)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildnigs
Industrial Buildnigs
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

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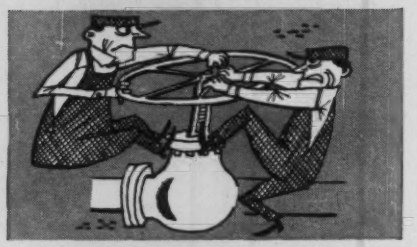

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Montgomery St., Cherry St., Rutgers St., and Madison St., Manhattan Boro, NEW YORK, N. Y. New York City Housing Auth., 299 Broadway, New York 7, N. Y. (7 bidders). Bids June 1. CD 5/26;

Afco Engineering Co., 475 Adelphi St., Brooklyn 17, N. Y. LB **$373,300.** heating and ventilating. (NYCHA);

Brown Electric Co., 250 E. 43 St., New York 17, N. Y. LB **$369,950.** electrical work (NYCHA).;

C. K. Rehner, 4920 Skillman Ave., Woodside 77, N. Y. LB **$642,237.** plumbing (NYCHA).

▲ **Pagliarulo Bros.**, Oak St., Copiague, N. Y. Owner Builds. **$2,000,000.** Captree SHOPPING VILLAGE, on 10 acre tract at Union St. and Keith Lane, WEST ISLIP, N. Y.

▲ **Closter Knolls Homes**, c/o Harvet J. Milkon, 35-12 Broadway, Fairlawn, N. J., Owner Builds, **$1,500,000,** 80 HOUSES on tract at Piermont Rd. and Walker Ave., CLOSTER, N. J.

▲ **Del-Valley Corp.**, Cherry Hill Inn, Haddonfield, N. J. Separate Contracts, **$10,000,000,** 500-unit RESIDENTIAL DEVELOPMENT, near Route No. 38, ERLTON, N. J. Edwards & Green, 17 S. 5 St., Camden, N. J., archts.

▲ **Point Pleasant Homes**, Point Pleasant, N. J., Separate Contracts, **$1,820,000.** RESIDENTIAL DEVELOPMENT, POINT PLEASANT, N. J. Robert H. Stuart, 414 6 Ave., Belmar, N. J., archt.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 14 South Carolina — June 15 Virginia
June 17 Alabama — June 23 Florida

STREETS AND ROADS

June 14 South Carolina — June 15 Virginia

HEAVY CONSTRUCTION—LB & CA

▲† **Farnsworth & Chambers Co., Inc.**, Box 74, Houston, Tex. LB **$2,220,429,** est. $1,150,000-$2,350,000. ordnance storage facilities, Lake Charles Air Force Base, ENG-41-243-55-63, LAKE CHARLES, LA. U. S. Eng., Box 1229, Galveston, Tex. Bids May 24. CD 4/15.

▲† **R. P. Farnsworth & Co., Inc.**, Box 850, New Orleans, La. CA **$2,057,000.** hangar, Joint Air Reserve Training Center, Alvin Callender Field, (Belle Chasse), NOY 82590, NEW ORLEANS, LA. Officer in Charge of Constr., Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans, La. CD 4/5, under LB.

BUILDINGS—LB & CA

▲ **Fehler & Feinauer, Inc.**, Deshler Lane, Fort Thomas, Ky. Owner Builds. **$3,000,000.** two hundred 1½ story bsmnt., brick HOMES, Highland and Grand Aves., FORT THOMAS, KY. Morlidge & Morlidge, Newport, Ky., engrs. Awarded May 25.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

June 21 Wisconsin

BUILDINGS—BA

▲ **O., Toledo**—HOSPITAL—BA 6/15—Bd. Trustees, Mercy Hospital, Madison and 23 Sts., 6 story hospital addn., 6 story school of nursing, central power and heating plant, laundry, cafeteria, $2,500,000, Robert J. Reiley Jr., Paramount Bldg., archt. CD 4/14.

▲ **Ill., Chicago**—SCHOOL, etc.—BA 6/17—Bd. Educ., 228 N. La Salle St., Zone 1, high and elementary school, swimming pool at 114 St. and Ave. "O". $3,000,000. Perkins & Will, 309 W. Jackson Blvd., Zone 6, archts. CD 9/29/53.

▲ **Mich., Detroit**—GARAGE—BA 6/21—City, Frank G. Schemanska, pres. Memorial Hall Comn., 151 W. Jefferson St., MH-44 2 level underground garage. $1,575,000. Plans deposit $100, refundable. O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts. Crane, Kiehler & Kellogg, 112 Madison Ave., Detroit, engrs. CD 3/1.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

O.—**Churchill Constr. Co.**, 1533 Shawnee Rd., Lima, O. LB **$164,199,** est. $193,100. type T-35 4.347 mi. SR 31- (6.13) (9.37-10.55), city of Kenton, Hardin Co.; 3 bidders; LB **$90,686,** est. $99,415. Type T-30, B-35 and T-35 14.52 mi., Auglaize and Shelby Counties, 1 bidder;

O.—**S. E. Johnson Co.**, P.O. Box 29, Maumee, O. LB **$585,755,** est. $555,800. Type T-35 and structure 2.13 mi. USR 20-14.97 (City of Maumee), Lucas Co., 2 bidders;

O.—**The Harry Miller Excavating Co., Inc.**, Suffield, O. LB **$1,580,903,** est. $2,008,500. Type T-71 and structure 9.057 mi. USR 225-0.00, 14.24, Porgate and Summit Counties, 20 bidders;

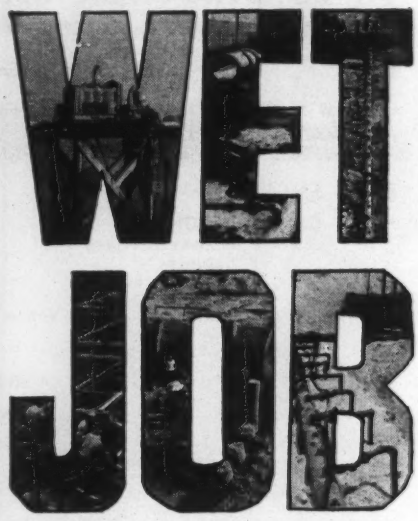
O.—**The Ohio Engineering Co.**, 105 Sixth St., Lorain, O. LB **$570,000,** est. $748,700. Type T-35 and structures 10.176 mi., USR 224-(0.00) (1.14-9.26), Hancock-Seneca, Seneca Co., 1 bidder;

O.—**Edgar Spring, Inc.**, New Philadelphia, O. LB **$91,991,** est. $102,570. Type T-30, B-35 and T-35 12.62 mi. Carroll and Tucarawas Counties, 2 bidders;

O.—**The Kelley & Meyer Co.**, 1211 Gibson St., Youngstown, O. LB **$75,997,** est. $84,820. Type T-30, B-35 and T-35, 9.72 mi., Mahoning Co., 1 bidder;

O.—**L. P. Cavette Co.**, 811 Shepherd Ave., Lockland, O. LB **$99,414,** est. $106,650. Type T-30, T-31 and

IF IT'S A



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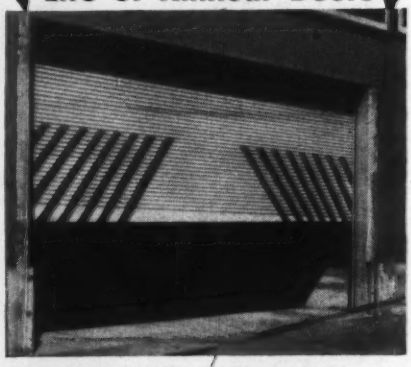

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KINNEAR ROLLING DOORS
Saving Ways in Doorways

T-32 37.08 mi.. Athens a d Hocking and Vinton Counties, 5 bidders;

O.—**The Shelly Co.**, Thornville, O. LB **$105,619,** est. $125,280. Type T-30, T-31 and T-32 34.09 mi., Gallia and Meigs Counties, 8 bidders;

O.—**Hall & Barber, Inc.**, Box 351, Cambridge, O. LB **$87,930,** est. $97,060. Type T-30, T-31 and T-32 29.15 mi., Morgan and Washington Counties, 5 bidders. Bids May 24. CD 4/21.

▲ **Hunklin-Conkey Constr. Co.**, 1740 E. 12 St., Cleveland, O.. CA **$3,900,816,** est. $4,600,000. secondary sewage treatment plant to handle 50 mgd., Botzum, AKRON, O. City, Leo G. Walter, service dir., Municipal Bldg., Akron, O. Bids Apr. 29. CD 3/22.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis,

Sollitt Constr. Co., 301 Columbia St., South Bend, Ind. CA, **$1,655,530,** maintenance bldgs. M-1, west of Chesterton, Porter Co.; M-2, south of U. S. Route 20 on Fall Rd., La Porte; M-3, north of U. S. Route 20 on Ash Rd., St. Joseph Co.; M-4, east of Scott, La Grange Co.; M-5, east of Orland, Steuben Co. Bids May 4, awarded May 19. CD 5/18, under LB.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis, Zone 4,

H. G. Christman Co., Inc.. 850 Fellows St., South Bend, Ind., LB, **$1,562,359.** toll plazas and lighting in Steuben, La Grange and Elkhart Counties. Bids May 25. CD 4/28.

▲ **MICHIGAN**—State Hy. Dpt., 213 S. Capitol Ave., Lansing,

Mich.—**Herlihy Mid-Continent Co.**, 135 S. La Salle St., Chicago, Ill. LB **$2,210,614.** bridge on relocation of US-23 over Saginaw River incl. abutments piers, pile clumps, transformers vault, concrete and steel, U B of 9-13-8 C1 (U-417 2), Bay Co.;

Mich.—**Intrusion Prepakt, Inc.**, Union Commerce Bldg., Cleveland, O. LB **$148,547,** est. $80,000. bridge repairs on M-100 over Grand River, M B1 of 23-11-7 C1-U, Eaton Co.;

Mich.—**Blue Water Excavating Co.**, Port Huron, Mich. LB **$79,826,** est. $90,000. rein.-con., steel bridge on US-25 over Canal, F B1 of 77-12-1 C1-U (F 149 12), St. Clair Co. Bids May 25. CD 5/13 and 4/26.

BUILDINGS—LB & CA

▲ **Stahl Development Co.**, c/o Frederick A. Schmidt, Inc., Fifth and Main Sts., Cincinnati, O. Owner Builds. **$12,000,000.** 500,000 sq. ft. SHOPPING CENTER, 3,000 parking spaces, Seymour and Reading Sts., CINCINNATI, O. David Lieberman & J. R. Passonneau, 605 Walnut St., Knoxville, Tenn., engrs.-archts. Awarded June 10.

▲ **Henry Stock & Son**, 330 Leo St., Dayton, O. CA Est. **$1,600,000.** general contract. 2 story, 45,000 sq. ft. brick FACTORY, 20,000 sq. ft. OFFICE, DAYTON, O. Lau Blower Co., 2007 Home St., Dayton, O.

▲ **Ben Siegel**, 6411 Graceland Ave., Cincinnati, O. Owner Builds. Est. **$3,500,000.** 250 brick HOMES, off State Rte. 74, MOUNT CARMEL, O. Montgomery Bros., Batavia, O., engrs. Awarded May 24.

▲ **Wermuth, Inc.**, 1036 St. Marys St., Fort Wayne, Ind., CA, **$2,000,000,** general contract first group of 8 BUILDINGS in new college campus, incl. ADMINISTRATION, CLASSROOMS, LECTURE ROOM, 10 FACULTY OFFICES, STUDENT COMMONS, POST OFFICE, DINING HALL, HEALTH CENTER, LIBRARY, AUDITORIUM and central heating plant, FORT WAYNE, IND. Bd. Control, Concordia Senior College, Concordia Pl., Fort Wayne, Ind. Eero Saarinen, Bloomfield Hills, Mich., archt. Awarded May 26. CD 9/8.

▲ **River Lane Subdivision**, 863 N. Greenwood St., Kankakee, Ill. Own Forces, **$3,000,000.** 200 HOMES, BRADLEY, ILL.

▲ **De Michele Builders**, 6113 Diversey St., Chicago, Ill., Own Forces, **$2,800,000.** 180 HOMES in Norwood Park area of CHICAGO, ILL. A. J. Del Bianco, 5501 Irving Park Blvd., Chicago, Ill., archt.

▲ **James McHugh Constr. Co.**, 6449 S. Park Ave., Chicago, Ill. and **C. E. Youngdahl & Co. Inc.**, 29-28 41 Ave., Long Island City, N. Y., LB, **$12,785,000.** six APARTMENT BLDGS., incl. 1,184 units and boiler house, 35 and State Sts., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, Ill. Bids May 17. CD 4/22.

▲ **A. J. Erickson**, 800 Ogden Ave., Downers Grove, Ill., Own Forces, **$1,800,000,** 74 HOMES, Shady Lane Estates, DOWNERS GROVE, ILL.

▲ **Paul L. Fager**, 1012 S. 17 St., Maywood, Ill., Own Forces, **$2,500,000.** 150 HOMES, GLENELLYN, ILL.

▲ **River Lane Subdivision**, 863 N. Greenwood St., Kankakee, Ill. Own Forces. **$4,500,000,** 300 HOMES, KANKAKEE, ILL.

▲ **Pinehurst Homes Co.**, Fox Lake, Ill., CA, **$10,000,000.** 800 HOMES, McHENRY, ILL. H. C. Hoffman Co., Inc., 188 W. Randolph St., Chicago 1, Ill.

▲ **Colwell Homes, Inc.**, 4057 W. Maple St., Bloomfield, Mich. Owner Builds. **$2,200,000.** Hillcrest Manor 200 brick HOUSES, ROYAL OAK, MICH.

▲ **Rodney M. Lockwood**, 2031 National Bank Bldg., Detroit, Mich. Owner Builds. **$25,200,000.** Cranbrook Village 1,200 brick HOMES, 400 acre site incl. roads, sewer and water sys., SOUTHFIELD, MICH.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

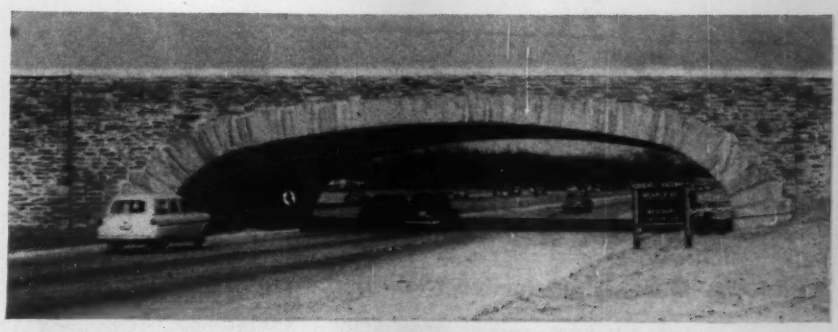
BRIDGES

June 14 Iowa

STREETS AND ROADS

June 14 Iowa June 17 Colorado

(*Advertisement*)



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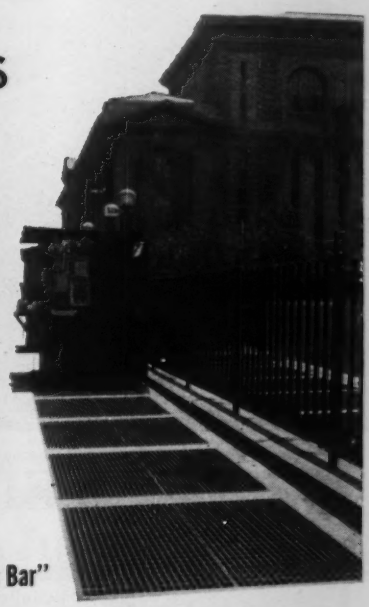

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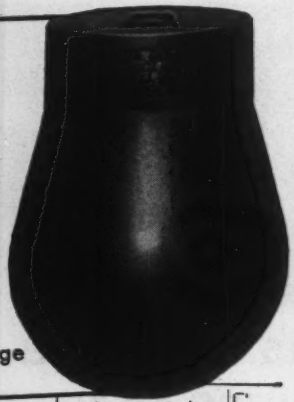

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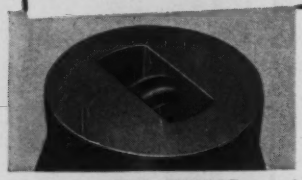

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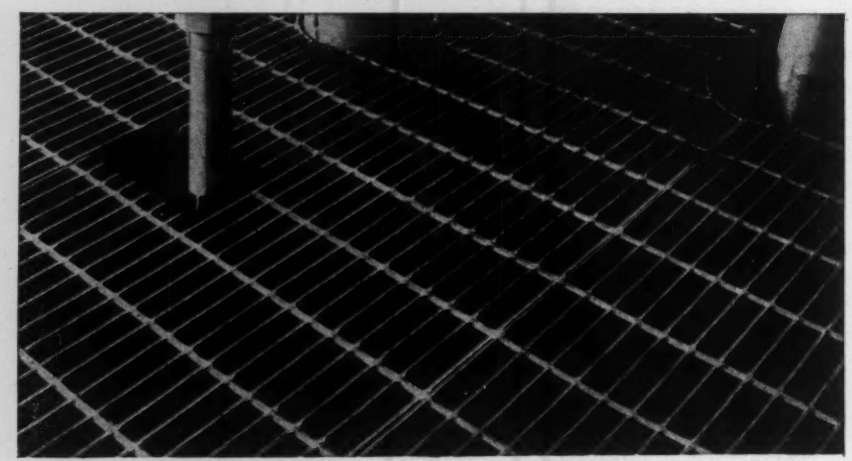

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▲† **Ark., Jacksonville**—HYDRANT, etc.—BA 6/21—U. S. Eng., P. O. Box 867, Little Rock, Hydrant No. 1, addnl. aircraft fueling, Little Rock Air Force Base, Serial No. ENG-3-050-55-125, $1,000,000-$3,000,000.

▲† **Ark., Jacksonville**—ROADS, etc.—BA 6/23—U. S. Eng., P. O. Box 867, Little Rock, rehabilitation of roads, storm drainage, utilities, curbs, gutters and surf. Little Rock Air Force Base, ENG-03-050-55-115. $1,000,000-$3,000,000. Extended date. CD 5/25.

▲ **Kan., Kansas City**—Bids Asked—The Kansas City Suburban Water Co., Inc., Chas. E. McArthur, pres., 5916 Dearborn St., Kansas City, Kan., (selected list bidders), water treatment and purification plant on Kaw River near Morris, $1,500,000, Black & Veatch, 4706 Broadway, Kansas City, Mo. engrs.

BUILDINGS—BA

▲ **Kan., Manhattan**—ANIMAL INDUSTRIES—BA 6/15—State Dpt. Admin., State House, Topeka, animal industries bldg. at Kansas State College, $1,300,000. Dwight Brown, State House, Topeka, state archt. CD 4/29/53.

HEAVY CONSTRUCTION—LB & CA

▲ **City, A. J. Haberkorn, clk., St. Cloud, Minn.** rejected bids May 10, 9 m.g. water treatment plant, ST. CLOUD, MINN. Will re-advertise. (Correction-status) CD 5/23, under CA.

▲ **Foster-Smetana Co.**, 4360 Nicholas St., Omaha, Neb. and **James Bros. Constr. Co.**, 111 N.W. 23 St., Oklahoma City, Okla. LB **$1,277,238.** Broadway Bridge Contr. No. 4 south approach superstructure, KANSAS CITY, MO. City, P. Wks. Dpt., City Hall, Kansas City, Mo. Howard, Needles, Tammen & Bergendoff, 1805 Grand Ave., Kansas City, Mo., engrs. CD 12/17/52.

SOUTH DAKOTA—State Hy. Comn., Pierre,

S. D.—**G. H. Lindekugel & Sons**, Mitchell, S. D., CA, **$122,984.** base course and bit. surf. 8.889 mi. Proj. 10, S-621 (1) and S-59 (3), Roberts Co.;

S. D.—**W. E. Bartholow & Son Constr. Co.**, Huron, S. D., CA, **$147,084.** bit. surf. 14.44 mi. Proj. 3, FAP 93, Beadle Co.;

S. D.—**J. L. Healy Constr. Co.**, 301 Western Surety Bldg., Sioux Falls, S. D., CA, **$142,478,** bit. surf. 14.046 mi. Proj. 4, FAP 152 Pt. and 124, Codington Co.;

S. D.—**Sweetman Constr. Co.**, 62½ Broadway, Sioux Falls, S. D., CA, **$1,715,853,** grading, sub-base, paving, etc. 5.352 mi. Proj. F-115 (6) and U-115 (5) Minnehaha Co.;

S. D.—**Mauer Constr. Co.**, Sac City, Iowa, CA **$217,427,** base course and bit. surf. 16.453 mi. Proj. 5, S-179 (2) and Spur to Gary, Deuel Co.; CA, **$94,669,** base course and bit. surf. 7.569 mi. Proj. 7, 222 (5), Lincoln Co.;

S. D.—**C. H. Lien Constr. Co.**, 8 and St. Anne Sts., Rapids City, S. D., CA, **$194,778.** base course and bit. surf. 14.741 mi. Proj. 6-S-260 (15) Hughes Co.;

S. D.—**Gustafson & Reynolds Co.**, 502 E. 6 St., Sioux Falls, S. D., CA **$75,721,** base course, bit. surf. 6.796 mi. Proj. 8, S-616 (1) and S-370 (2), Lincoln Co. Grand total $2,710,994. Bids May 24. CD 5/12.

▲ **KANSAS**—Kansas Turnpike Auth., 2306 W. 10 St., Topeka,

KTA—**Maxwell Bridge Co.**, Columbus, Kan. LB **$2,544,-538** superstructure of Kansas River Bridge, Douglas Co.;

KTA—**United Contractors**, 1901 Easton Blvd., Des Moines, Ia. LB **$802,740.** mine multiple span continuous steel girder bridge, Butler Co. Bids May 27. CD 5/10.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—**Austin Bridge & Co., and Worth Constr. Co.**, P. O. Box 1590, Dallas, Tex., CA, **$1,420,553,** flex. base, c. conc. 7.259 mi. Hy. SH 199, Proj. F 1102 (1), Tarrant Co.;

Tex.—**Gulf Bitulithic Co. & F. M. Reeves & Sons of Austin**, P. O. Box 2752, Houston, Tex., CA, **$525,920,** flex. base c. conc. and b. conc. 1.067 mi. SH 73 Proj. FI 1052 (25), Harris Co.;

Tex.—**M. B. Killian Co. & Killian House Co.**, 4600 Broadway, San Antonio, Tex., CA, **$2,748,860,** flex. base, c. conc. and b. conc. 5.222 mi. US 81, Proj.; FI 31 (17), etc., Bexar Co. CD 5/24, under LB;

Tex.—**Cabe Bros.**, 6959 San Pedro St., San Antonio, Tex., CA, **$1,091,369,** grading, drainage structures T & P RR overpass, flex. base, b. conc. 15.666 mi. Hy. US 80 Proj. F 235 (23), etc., Ector Co. CD 5/23, under LB. Bids May 18. Grand total $5,786,-702. Awarded May 24.

BUILDINGS—LB & CA

▲ **Schuermann Building & Realty Co.**, 5934 Natural Bridge Ave., St. Louis 14, Mo. Owner Builds. **$2,000,000.** 270 addnl. RESIDENCES in Bissell Hills No. 14 vicinity of Chambers Rd. east of Bellefontain Rd., BELLEFONTAIN NEIGHBORS (ST. LOUIS 15 P. O.), MO.

▲ **Schneider Homes, Inc.**, 3301 S. Crysler St., Independence, Mo. CA Est. **$5,000,000.** Manor Oaks subdivision 303 HOME sites, 120 acres located Crysler Rd. north of 35 St., INDEPENDENCE, MO. Schneider Homes, Inc., Jno. F. Schneider, developer in assn. with Wm. Erickson, 3301 S. Crysler St., Independence, Mo.

▲ **Schuermann Building & Realty Co.**, 5934 Natural Bridge Ave., St. Louis 14, Mo. Owner Builds. **$2,300,000,** 300 RESIDENCES in Northland Hills subdivision on West Florissant Rd. north of Lucas and Hunt Rd., ST. LOUIS COUNTY, MO.

▲† **MacDonald Constr. Co.**, 1310 S. Grand Blvd., St. Louis 4, Mo. LB **$3,277,207.** rehabilitation, modification of BUILDING 205 at St. Louis Ordnance plant, vicinity of 4300 Goodfellow Blvd., ST. LOUIS, MO.

U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids May 25. CD 4/29.

▲ **Graver Constr. Co.,** 332 S. Michigan Ave., Chicago, Ill., CA, **$3,500,000,** REFINERY, RAPID CITY, S. D. Great Plains Refinery Development Co., 711 Main St., Rapid City, S. D. CD 11/12.

▲ **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., CA, **$1,500,000,** POWER HOUSE for the Dixon-Yates Steam Plant, WEST MEMPHIS, ARK. Ebasco Services, Inc., 2 Rector St., New York, N. Y. for Mississippi Valley Generating Co. (sub. Middle South Utilities Co.) 2 Rector St., New York 6, N. Y. Bids May 18, awarded May 24. CD 5/6.

▲ **Tellepsen Constr. Co.,** Box 2536, Houston, Tex., CA, **$1,630,000.** 2nd section of SHOPPING CENTER, HOUSTON, TEX. Northshore Village Corp., c/o Robert W. Clemens, archt., Box 12213, Houston, Tex. CD 4/22.

▲ **Westinghouse Electric Corp.,** 507 Dallas St., Houston, Tex., LB, **$1,442,570,** Item 1; **$423,138** Item 2; 17,500 kv gas turbine POWER PLANT and appurtenances, LUBBOCK, TEX. City, City Hall, Lubbock, Tex. Bids May 17.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 22, 23 California

BUILDINGS—BA

▲ **Calif., Los Angeles**—HIGH SCHOOL—BA 6/17—Los Angeles Bd. Educ., 1425 S. San Pedro St., Francis Polytechnic High School, Sun Valley. $2,426,000. Austin, Field & Fry, 2311 W. 3 St., archts. CD 4/15/54.

HEAVY CONSTRUCTION—LB & CA

▲† **C. H. Leavell Co.,** 1900 Wyoming St., El Paso, Tex., and **Utah Constr. Co.,** 100 Bush St., San Francisco, Calif. CA **$3,651,000.** addnl. aviation facilities, NOY 87427, Spec. 45620, FALLON, NEV. P. Wks. Officer, Twelfth Naval Dist., San Bruno, Calif. CD 5/24, under LB.

▲ **Elliott Co.,** 900 N. 4 St., Jeanette, Pa., LB, **$2,048,665,** 3 generators for proposed $40,000,000 Mayfield hydro project, TACOMA, WASH. City, City Hall, Tacoma, Wash. Bids May 26, CD 4/22;
S. Morgan Smith, East Berlin Rd., York, Pa., LB, **$1,308,105,** 3 turbines (Tacoma, Wash.).

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,
Calif.—**Griffith Co.,** 1060 S. Broadway, Los Angeles, Calif., LB, **$209,683,** surf. 47 mi. of Hy. at various locations;
Calif.—**Gordon H. Ball,** 300 Camille Ave., Danville, Calif., LB, **$1,521,676** grading, paving 5.8 mi. bridge across Deer Creek, undercrossing and 3 overcrossings U. S. 99, Tulare Co.;
Calif.—**Rice Bros., Inc.,** Victor Rd., Lodi, Calif., LB, **$74,945,** surf. 15.3 mi. hy. at various locations, Amador, Calveras, San Joaquin Counties;
Calif.—**Gallagher & Burk, Inc.,** 344 High St., Oakland, Calif., LB, **$244,071.** surf. widn. roadway 4 mi. Sign Rte. 21, Contra Costa Co.;
Calif.—**Stewart & Nuss, Inc.,** 410 Thorne Ave., Fresno, Calif., LB **$116,068,** surf. 23.2 mi. Sign Rtes. 180 and 41 and US 99 at various locations, Fresno and Madera Counties;
Calif.—**Clements Constr. Co.,** 210 Sequoia Rd. Centerville, Calif., LB, **$118,390.** surf. 17.2 mi. U. S. 299 Shasta Co.;
Calif.—**Brown, Ely Co.,** 7360 Schmidt Lane, El Cerrito, Calif., LB, **$79,969.** surf. 11.3 mi. U. S. 99E, Placer Yuba and Nevada Counties. Bids May 2. CD 4/28.

▲ **Macco Corp.,** 4409 S. Paramount Blvd., Paramount, Calif., **Peter Kiewit Sons Co.,** 1024 Omaha Natl. Bank Bldg., Omaha 2, Neb., **Stolte Inc.,** 8451 San Leandro St., Oakland 5, Calif., and **Morrison-Knudsen Co., Inc.,** Box 450 Boise, Idaho, CA, **$31,200,000.** Donnells and Beardsley Power Proj. (Tuolumne Proj.) Stanislaus River, Sierra Nevada, CALIFORNIA, Oakdale Irrigation Dist. and South Joaquin Irrigation Dist., 322 D St., Oakdale, Calif. Bids May 23, awarded May 27. CD 5/26, under LB.

▲ **N. P. Van Valkenburg,** 8609 San Vicente Ave., South Gate, Calif., CA, **$1,380,953,** water pipe lines in El Cajon Area, LA MESA, CALIF. La Mesa, Lemon Grove & Spring Valley Irrigation Dist., 4769 Spring St., La Mesa, Calif. Bids May 17. CD 4/26.

▲† **Heller Constr. Co., Campbell Constr. Co., Erickson Constr. Co. & Lawrence Constr. Co.,** 3020 V St., Sacramento, Calif., CA **$1,728,185,** ADC buildings, aprons, roads, utilities, McClellan Air Force Base, ENG-55-50, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids May 29. CD 5/31, under LB.

BUILDINGS—LB & CA

▲ **Rubenstein Constr. Co.,** 1012 N. 27 Ave., Phoenix, Ariz., LB **$4,229,000.** construct, manage and finance 500-unit military HOUSING at Army Electronic Proving Grounds, FORT HUACHUCA, ARIZ. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. Bids May 27. CD 5/16.

▲ **Devon Constr. Co.,** 739 N. Highland Ave., Los Angeles, Calif., CA, **$1,835,000.** 173 frame, stucco DWELLINGS, Whiterock Dr. and Roman Dr., LA MIRADA, CALIF. Parkwood La Mirada No. 2, 739 N. Highland Ave., Los Angeles, Calif. Richard Leitch, 2545 E. Washington St., Pasadena, Calif., archt.

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▲ **Ford J. Twaits Co.**, 449 S. Beaudry St., Los Angeles, Calif., CA, $1,408,000. PHYSICAL SCIENCES BLDG., LOS ANGELES, CALIF. University of Calif., 405 Hilyard Ave., Los Angeles, Calif. Bids May 10. CD 5/13, under LB.

▲ **Valley Estates**, 6338 Wilshire Blvd., Los Angeles, Calif. Owner Builds. $1,404,000. 135 stucco DWELLINGS, Academy, Concord and Bellinda Aves., POMONA, CALIF.

▲ **Family Land Co.**, 2933 W. Compton Blvd., Gardena, Calif., CA, $1,343,410, 139 stucco DWELLINGS, Laurette and other streets, Tract 18778, TORRANCE, CALIF. Xilo Homes, 2933 Compton Blvd., Gardena, Calif.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 15, Ontario and Quebec

BUILDINGS—SLC

▲ **Ont., Whitby**—PLANT—Canadian Wirebound Boxes Ltd., 1000 Gerrard St. E., Toronto, soon lets contract 1 story 400x400 ft., concrete, steel plant Water St. $1,500,000. A. Leslie Perry, 1434 St. Catherine St. W., Montreal, Que., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Sir Robrt McAlpine & Sons (Canada) Ltd.**, 38 King St. W., Toronto, Ont., CA Total est. $3,100,000, 13 mi. subgrade work, structures for relocation of Canadian National Railways road, near Cornwall in connection with flooding St. Lawrence power area, ONTARIO. Ontario Hydro-Electric Power Comn., 620 University Ave., Toronto 2, Ont. Bids May 17. CD 4/20. **C. A. Pitts General Contractors Ltd.**, 30 Commercial Rd., Toronto, Ont., CA 13 mi. of roadbed (Ontario); **Iriquois Constructors Ltd.**, 1290 Bay St., Toronto, Ont., CA, 13 mi. roadbed (Ontario).

▲ **College Park Development, Inc.**, 6777 Deacon Rd., Montreal, Que., Owner Builds, $2,500,000. 70 duplexes, 7 to 8 apartment blocks, 15 bungalows in HOUSING DEVELOPMENT in Laurentian Blvd. and College St. area Ville St. Laurent suburb, MONTREAL, QUE.

▲ **Louis Donolo, Inc.**, 8320 St. Lawrence Blvd., Montreal, Que., CA, $2,000,000. 9 story, 90x257 ft., rein.-con. APARTMENT, St. Catherine St. W., near Metcalfe St., MONTREAL, QUE. Greenvale Holdings Corp. & Atlas Enterprises Corp., c/o Greenspoon, Freedlander & Dunn, archts., 4151 Sherbrooke St. W., Montreal, Que., archts. Bids May 9, awarded May 24.

BUILDINGS—LB & CA

▲ **Mannix-Gill, Ltd.**, Calgary, Alta., CA, Total est. $7,000,000. steam powered ELECTRIC GENERATING STATION with 1,800 ft. long earth filled dam on Battle River 11 mi. southwest of Forestburg, EDMONTON, ALTA. Canadian Utilities Ltd., 10529 Jasper Ave., Edmonton, Alta. CD 1/25/55, under CA.

▲ **Leon M. Adler**, 2200 Ward Ave., Ville St. Laurent, Montreal, Que., CA, $1,250,000. SHOPPING CENTER, on 10-acre site near Dartmouth-Halifax Bridge DARTMOUTH, N. S. Dartmouth Shopping Center Ltd., P.O. Box 100, Dartmouth, N. S. Ian Martin, 1200 St. Alexander St., Montreal, Que., and J. P. Dumaresq, 77 Upper Water St., Halifax, N. S., archts. CD 4/27, under CA.

▲ **C. F. Braun Co. of Canada**, Sarnia, Ont., CA, $14,000,000. PLANT on 100-acre site, SARNIA, ONT. Ethyl Corp. of Canada Ltd., 44 King St. W., Toronto, Ont. C. F. Braun & Cox, 1000 S. Fremont Ave., Alhambra St., Los Angeles, Calif., U. S. A., engrs. Awarded May 25. CD 1/17.

▲ **E. G. M. Cape & Co.**, 620 Cathcart St., Montreal, Que., CA Total est. $20,000,000 entire project; concrete floors at 2 levels, rein.-con. transformer house, part of rein.-con. bridge for Belmont St. in connection with Queen Elizabeth Hotel, Dorchester St. W., MONTREAL, QUE. Canadian National Rys., R. O. Stewart, ch. engr., 360 McGill St., Montreal, Que. G. F. Drummond, c/o owner, ch. archt. Bids May 16, awarded May 30. CD 4/28.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲† **Island Constr. Co., Anderson Constr. Co. & Benson-Montin Corp.**, 1103 N. 36 St., Seattle, Wash. LB $6,170,355, est. $7,032,083, base maintenance hangers and other bldgs., at Elmendorf and Ladd Air Force Bases, Inv. 55-52, ALASKA. U. S. Eng., Anchorage, Alaska. Bids May 25. CD 4/13.

AMERICANS ABROAD

HEAVY CONSTRUCTION—BA

▲† **Spain, East Rota**—HARBOR CONSTRUCTION—BA 7/13 — Brown-Raymond Walsh, (Prime Contractors) Edipico Espana, Madrid, Harbor construction work, incl. harbor dredging 2,300 cu. meters; breakwater and marginal wharf, comprising approx. 2,600,000 tons rock and concrete, tanker unloading pier and trestle approach for Bureau of Yards & Docks, Navy Dpt., 18

St. and Constitution Ave. N.W., Wash. 25, D. C., U. S. A. Plans deposit 2000 pesetas. Bids will be considered only from Spanish-American combined enterprises. CD 1/12/54. under CA.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Turkey**—AIRFIELD—BA 6/20—Nafia Vekaleti, Hava Meydanlari Insaat Mudurlugu, Kayaklidere-Ankara, 9,000 ft. long airfield at Autalya, $9,520,000. Project is open to U. S. Bidders under Nato regulations. Commercial Intelligence Div. Bureau of Foreign Commerce, Dpt. Commerce, Washington, D. C. has bidding forms.

Proposed Projects——

WATER SUPPLY

▲ **Okla., Tulsa**—City, City Hall, water supply and pipe line to Illinois River near Tahlesuah, $10,000,000, W. R. Holway, 302 E. 18 St., consult. engr. CD 8/23.

BRIDGES

▲ **MISSISSIPPI and ARKANSAS**—Mississippi State Hy. Dpt., T. C. Robbins, dir., Jackson, Miss. and Arkansas State Hy. Comn., Herbert Eldridge, dir., Little Rock, Ark., (joint owners).
bridge across Mississippi River between Coahoma Co., Miss. and Phillips Co., Ark. $8,000,000. Howard, Needles, Tammen & Bergendoff, 1805 Grand Ave., Kansas City, Mo., engrs. CD 6/30/43.

STREETS AND ROADS

▲ **Colo., Denver**—City and Denver Co., City and County Bldg., voted bonds, expanding, extending and imprv. system of streets, highways, viaducts bridges and other public ways $8,700,000 Dewey Wright, city engr. CD 4/13.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adealide St. E., Don Valley Parkway, $12,000,000. Foundation Co. of Canada Engr. Corp., Ltd., 200 Bloor St. E., and Frederic R. Harris of Canada Ltd., 200 Bloor St. E., consult. engrs. CD 10/6/50.

EARTHWORK, WATERWAYS

▲ **Pa., Camp Hill**—SCHOOL—West Shore Joint School Bldg. Auth., Camp Hill, plans by Lawrie & Green, 321 North Front St., Harrisburg, high school, Lower Allen Twp. $2,500,000.

AMERICANS ABROAD

▲ **Lebanon**—Govt. of Lebanon, Beirut, plans 6 year program constructing T.V.A. type project in Litania River Valley, $40,000,000. Parsons & Harza (Ralph M. Parsons, 617 Olive St., Los Angeles 1, Calif. and Harza Eng. Co., 400 W. Madison St., Chicago, Ill.) will make plans and supervise construction.

PUBLIC BUILDINGS

▲ **Colo., Denver**—AUDITORIUM—City and Denver Co., City & County Bldg., defeated bonds, city auditorium, near Cheeseman Park, incl. large hall and smaller theater and outdoor amphitheater. $2,000,000. Stanley E. Morse, 1050 Cherokee St., Denver, consult. engr.-archt. CD 4/13.

▲ **Mass., Greenfield**—SCHOOL—Town, Ralph Haskins, chn. School Bldg. Comn., c/o Supt. Schools, 125 Federal St., plans by James A. Britton, 315 Federal St., high school, Dickinson St. $2,300,000. CD 7/13/53.

▲ **Mich., Lansing**—OFFICE—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., plans by Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, 12 to 15 story 238,900 sq. ft. state office, $6,200,000. CD 9/20.

▲ **N. Y., Brooklyn**—LAUNDRY—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, plans by Rogers & Butler, 219 E. 44 St., New York, Zone 17, 3 story laundry for city hospital, 567-97 Kingston Ave. $3,000,000. CD 11/23.

▲ **S. D., Sioux Falls**—SCHOOL—Bd. Educ., 107 High School Bldg., Sioux Falls, voted bonds Junior High School $2,000,000.

▲ **Wash., Tacoma**—SCHOOLS—School District No. 10, 601 S. 10 St., plans by Jensen & Mills, Jones Bldg., Junior High School in Browns Point area, $825,000; plans by Lea, Pearson & Richards, 240 S. Stadium Way, new West Side High School, $2,590,000; plans by McGuire & Muri, 231 Broadway, vocational school addn.; $635,000. CD 5/16.

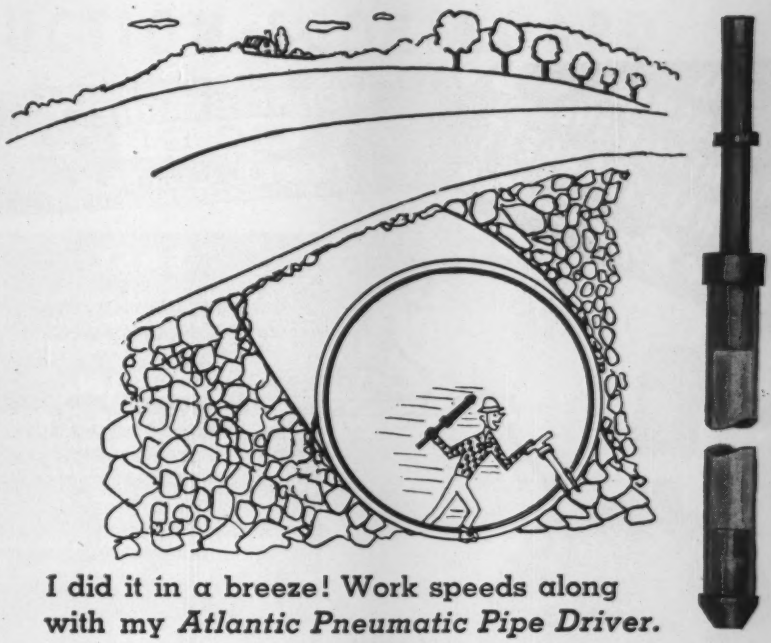
▲ **Que., Senneville** — LABORATORY — Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., plans by E. A. Gardner, c/o owner, research laboratory for pulp and paper. $2,000,000.

COMMERCIAL BUILDINGS

▲ **Fla., Jacksonville**—HOTEL—Meyer Hotels, First National Bank Bldg., Birmingham, Ala., plans by William B. Tabler, 401-415 Seventh Ave., New York 1, N. Y. 16 story hotel, Julia St. between W. Duval and W. Monroe Sts. $4,000,000.

▲ **Ill., Chicago**—HOSPITAL—Wesley Memorial Hospital, 250 E. Superior St., plans by Fugard, Burt Wilkinson & Orth, 520 N. Michigan St., Chicago, Zone 11, hospital addn. $3,000,000. CD 1/26/54.

▲ **Kan., Wichita**—SHOPPING CENTER—G.P.-N.C. & B.G. Consolver, c/o Fidelity Realty Co., 137 N. Main St., plans by Hissem & Lytle, 502 E. Douglas St., shopping center, 3800 E. Harry St. $3,500,000.



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▲ **Mich., Swartz Creek**—HOMES—Winshall Associates of Detroit, c/o Fred Walker, 300 Penobscot Bldg., Detroit, Crapo Farm development, 6,000 home proj., 1,385 acre site. $50,000,000.

▲ **Mich., Troy**—SHOPPING CENTER—H. F. Meyrick & A. A. Nechman, 970 N. Adams St., Birmingham, shopping center, 20 stores, Derby and Adams Rd. $2,000,000.

▲ **Mo., Olivette (St. Louis 24 P. O.)**—COMMUNITY CENTER—Jewish Community Centers Assoc., Milton Greenfield pres., 724 N. Union Blvd., St. Louis, Zone 8, community center proj. on 14 acre tract on Delmar Blvd. between LePere and Price Rds., $2,000,000.

▲ **N. J., Wildwood**—SHOPPING CENTER—Sea Gate Realty Co., Att. Perch Hankin, Professional Bldg., Willow Grove, Pa., and Grould Realty Co., 3000 Pacific Ave., plans by A. H. Salkowitz, 37-60 82 St., Jackson Heights, N. Y., shopping center, Park Blvd. $3,000,000.

▲ **N. Y., Brooklyn**—HOSPITAL—Methodist Hospital of Brooklyn, 6 St. and Seventh Ave., plans by Rogers & Butler, 219 E. 44 St., New York, Zone 17, hospital, Sixth St. adjacent to existing bldg. $4,000,000, Slocum & Fuller, 207 E. 32 St., New York, Zone 16, consult. engr. (Correction—architect's name). CD 5/23.

▲ **N. Y., Brooklyn**—HOSPITAL—Methodist Hospital of Brooklyn, 6 St. and Seventh Ave., plans by Roberts & Butler, 219 E. 44 St., New York, Zone 17, hospital Sixth St. adjacent to existing bldg. $4,000,000, Slocum & Fuller, 207 E. 32 St., New York, Zone 16, consult. engrs.

▲ **N. Y., New York**—ARTS CENTER—Columbia University 116 St. and Broadway, 10-11 story Arts Center, Amsterdam Ave. and 166 St. $6,000,000.

▲ **N. Y., New York**—OFFICE—Seaman's Bank for Savings, 30 Wall St., Zone 5, plans by Voorhees Walker, Smith & Smith, 101 Park Ave., Zone 17, office, 72 Wall St., 161-169 Pearl St. and 73-77 Pine St. $2,400,000. CD 5/9.

▲ **N. Y., Purchase**—DORMITORY—Manhattanville College of Sacred Heart, Purchase ,dormitory, physical education bldg. on campus. $3,500,000.

▲ **Tex., Dallas**—OFFICE—LMS Development Co., c/o N. G. Landrum, Jno. B. Mills, H. Edw. Smith, Mercantile Bank Bldg., Dallas, Tex., plans by Broad & Nelson, 918 Res Loan Life Bldg., Dallas, 19 story, 239,500 sq. ft., masonry, steel frame penthouse office bldg., Commerce and St. Paul Sts. $5,800,000. Zumwalt & Vinther, Mercantile Securities Bldg., consult. engrs.

▲ **Tex., Houston**—HOTEL—Martin Nadelman & Assocs., Shamrock Hotel, plans by Golemon & Rolfe, 5100 Travis St., 20 story hotel to be named Towers Hotel, adjacent to Texas Medical Center. $6,000,000. Skidmore, Owings & Merrill, 575 Madison Ave., New York 2, N. Y., consult. archts.

▲ **Tex., San Antonio**—BANK and OFFICE—National Bank of Commerce, Soledad and Commerce Sts., plans by Atleee B. & Rob. M. Ayres, 342 W. Woodlawn St., and Kenneth Frazheim, 802 Lovett St., 15 story, bsmnt. bank and office $4,500,000. auto parking garage, $300,000. W. E. Simpson Co., 945 Milam Bldg., consult. engr. CD 11/15.

▲ **Tex., San Antonio**—SHOPPING CENTER—Northview Corp., c/o Jno. B. Mills, 6851 Lakewood St., plans by Harvin C. Moor, 2006 W. Alabama St., Houston, 1 and 2 story, 400,000 sq. ft., masonry shopping center, Vance Jackson Rd. and Spencer Lane on San Antonio-Fredericksburg Freeway $5,000,000. Walter P Moore, 2 Pinedale St., and Jerold L. Davis, 9240 Kenilworth Dr., Houston, consult. engrs.

▲ **Que., Montreal**—HOSPITAL, etc.—Rehabilitation Institue of Montreal, 3001 Kent Ave., plans by Archibald, Illsley & Templeton, 1440 St. Catherine St. W., hospital and rehabilitation center, near present site $2,500,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Pittsburg**—PLANT—Kaiser Gypsum Co., Inc., 1924 Broadway, Oakland, Zone 12, gypsum board plant and plaster mill $5,000,000. Kaiser Engineering, Inc., 1924 Broadway, Oakland, Zone 12. consult. engr. CD 5/18.

▲ **Tenn., Morristown**—FIBER UNIT—American ENKA Corp., Morristown, rayon staple fiber unit $20,000,000.

▲ **Tex., Andrews**—PLANT, etc.—Phillips Pertoleum Co., City Natl. Bank Bldg., Houston, natural gas liquids extraction plant, $2,750,000; gas lines gathering sys. $200,000; booster station in Andres-Magutex field, $275,000 near here.

▲ **Alta., Edmonton**—PLANT—Canadian Gulf Oil Co., Ltd., Edmonton, natural gas stripping plant in Stettler Big Valley field, $2,000,000.

▲ **Ont., Streetsville**—FACTORY—Canada Clay Products Ltd., Breensboro, N. C., U. S. A., factory, on 185-acre site, $2,000,000.

UNCLASSIFIED

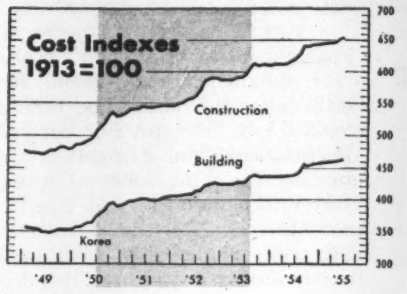
▲ **Colo., Denver**—PARKS, etc.—City and Denver Co., City and County Bldg., voted bonds, expanding, extending imprv. and developing public parks system and recreational facilities $2,000,000. Dewey Wright, city engr. CD 4/13.

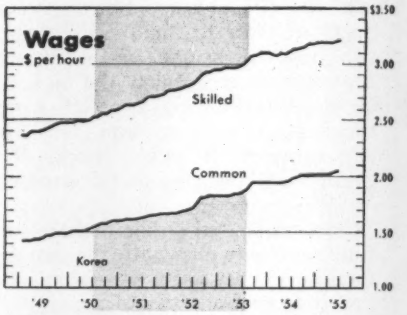
▲ **Ga., Atlanta**—RAILROAD FACILITIES—Southern Railway System, G. H. Echols, ch. engr. 15 and K Sts. N.W., Wash., D. C. railroad facilities. $15,000,000.

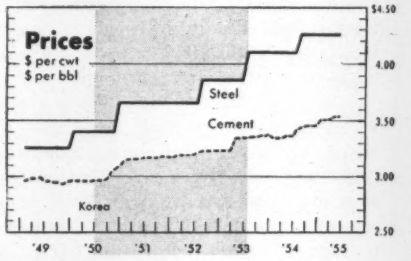
▲ **Oregon**—GAS MAIN—Portland Gas & Coke Co., 920 S. W. Sixth St., Portland, gas main expansion, $16,000,000.

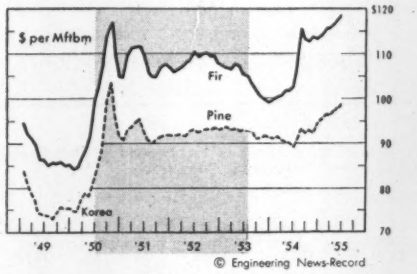
(Proposal Advertisements see pp. 85 to 89)

JUNE CONSTRUCTION SCOREBOARD









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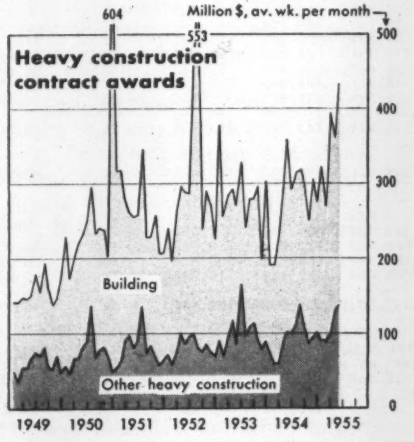


ENR INDEXES (1913=100), 20-cities' average	1955 June	% Change from last Month	% Change from last Year
Construction Cost	655.96	+0.4	+ 5.5
Building Cost	464.82	+0.5	+ 5.7
WAGE RATES, 20 cities' average			
Common	$2.059	+0.4	+ 3.9
Skilled (aver. 3 trades)	3.227	+0.6	+ 3.1
Bricklayers	3.489	+0.4	+ 2.1
Structural Ironworkers	3.210	+0.8	+ 3.9
Carpenters	2.983	+0.7	+ 3.4
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	3.551	0.0	+ 5.4
Structural Steel, (3-mill aver.), per cwt	4.250	0.0	+ 3.7
Sand, per ton	2.347	+1.1	+ 5.2
Lumber, 2x4 Fir, per M. ft. bm	118.722	+0.8	+15.8
Lumber, 2x4 Pine, per M. ft. bm	98.933	+0.9	+11.0
Common brick, per M	33.768	+0.3	+ 1.9
Ready-mixed concrete, per c. y	12.479	+0.5	+ 3.7
Structural Clay Tile, 3x12x12 per M	160.600	0.0	+ 0.1

CONTRACTS AWARDED (Millions)	1955 May	1955 5-Months	% Change from '54 May	% Change from '54 5-Months
Total U. S. (ENR reported)	$1726.5	$7542.6	+ 20.2	+41.2
Private	1147.6	4799.7	+ 24.4	+53.3
Public	578.9	2742.9	+ 12.5	+24.0
Federal	154.6	705.7	+ 48.2	+70.9
ENR Volume Index, '13=100	731	610	+ 12.8	+34.1
NEW CAPITAL (Millions)				
Total	929.8	3253.2	− 7.4	−13.5
State & Municipal Bond Sales	328.2	1665.9	− 52.0	−29.4
Corporate Security Sales	434.5	1392.9	+118.9	+12.9
Federal (non-federal work)	107.9	135.2	+ 73.8	+28.4
Federal (federal work)	59.2	59.2	− 2.3	− 2.3

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1955 Feb. (F) Mar. (M) Apr. (A)	2-Mos. 3-Mos. 4-Mos.	% Change from '54 Mo.	% Change from '54 Yr.-Cum.
Cement, bbls. Bu. of Mines	13.806(F)	27.120(2)	− 9.2(F)	+2.9(2)
Fabr. Struc. Steel, tons AISC	.240(A)	.907(4)	−18.4(A)	−1.7(4)
Lumber, mil. ft. bm., NLMA	3.477(M)	9.242(3)	+ 3.7(M)	+5.4(3)
Lumber Prod., mil. ft. bm., NLMA	3.363(M)	9.074(3)	+ 0.1(M)	+0.7(3)
Contract Const. Employ., BLS	2.417(A)	2.301(4)†	− 4.7(A)	−4.7(4)

† Average

ENR CONSTRUCTION & BUILDING COST INDEXES IN 22 CITIES (1913=100)

	Construction cost June '55	Construction cost Mar. '55	Building cost June '55	Building cost Mar. '55		Construction cost June '55	Construction cost Mar. '55	Building cost June '55	Building cost Mar. '55
Atlanta	472	474	399	400	Los Angeles	672	667	457	453
Baltimore	575	574	452	450	Minneapolis	711	697	493	492
Birmingham	511	511	423	423	Montreal	537	541	417	421
Boston	696	675	471	458	New Orleans	535	522	439	431
Chicago	741	736	477	469	New York	750	747	533	531
Cincinnati	664	645	456	450	Philadelphia	711	696	523	521
Cleveland	762	759	477	472	Pittsburgh	669	657	489	478
Dallas	488	484	406	402	St. Louis	720	693	495	483
Denver	637	635	474	470	San Francisco	676	658	445	447
Detroit	763	743	490	481	Seattle	681	676	418	414
Kansas City	686	665	479	468	Toronto	543	...	449	...

Another Monthly Record: It's the Third in a Row

May is close to all-time record for any month. Private work is mainly responsible, though public work is high

The construction boom continues to break records. For the third consecutive month, awards reported to ENR in May reached a new high for the month—in this case 20% above the previous May record set last year.

The May total of $1,727 million averages out to $432 million per week. This is the biggest weekly volume for any month in history, excluding those months in 1950 and in 1952 when tremendous Atomic Energy Commission contracts were let.

This record-breaking May has pushed the five-month total to $7.5 billion, which of course is also a new high for the period. It is 14% above the old record in 1953, and more than 40% above this same period in 1954.

• **Private work sets the pace**—Though awards for public work are not lagging, the rush of new private work is the force that is piling up most of the big gains in new business. Private awards averaged $287 million per week—a new record for average weekly volume of private work during any month. This brings the five-month total for private work to $4.8 billion, 23% above the previous high for the period in 1953 and more than half again as much as last year.

Private contracts thus far in 1955 account for 64% of all heavy construction awards. This compares with previous highs of 59% in 1953 and 1954, and 60% in 1951 during the defense industrial expansion.

Housing, commercial, and industrial building piled up a heavy volume of new contracts. Mass housing contracts rebounded from the April lull—if you can call a $99.5-million weekly average a "lull." The May average was $162 million, close to the March record high of $174 million. Commercial awards increased to $34.6 million per week, second best month this year. Industrial building, at $64 million, held close to the high April average.

• **Public work**—State and municipal awards broke all records for May, though down from the very high April rate. This was the fourth consecutive month that state and local contracts have set new monthly records.

Federal construction awards climbed to $39 million per week, second best month so far this year. The total so far in 1955 is 70% ahead of last year.

Highways are the strongest area of public works. This May set a new record for the month, and the five-month total is 22% above last year. Waterworks is the only other major category setting a new high this year. The five-month total is about 3% over the 1953 record. Sewerage contracts are close to the 1953 record.

While earthwork and waterway contracts are well below the high levels of 1951-1952, this type has scored the biggest increase over 1954 for any category of public work. The gain is 82% over the first five months of 1954.

Non-residential public buildings are running about even with the first five months of last year, which was the lowest five-month period since 1949. This category includes schools, but there are no separate figures. Public housing awards in May were double last year. Total 1955 contracts are up 55% over last year's low level.

• **Regions**—All regions continue to share in the surge of heavy construction contracts this year. May awards were up substantially over April in all regions except the South. Compared to May 1954, all regions did better except for a slight decline in the Far West. The Middle Atlantic scored $503 million, biggest month on record in terms of average weekly volume.

ENGINEERING CONSTRUCTION CONTRACTS—MAY 1955

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000

Four Weeks—Thousands of Dollars (000 Omitted)

	May, 1955							U. S. Cumulative Five Months		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1955	1954	Change '54 to '55	May 1955
Public Works											
Waterworks	715	1,956	2,536	4,448	7,371	1,837	18,863	103,548	97,414	+ 6	1,562
Sewerage	2,492	6,928	2,818	7,335	4,838	4,469	28,880	158,975	151,552	+ 5	3,171
Bridges	4,455	6,033	2,571	2,013	7,301	6,785	29,158	180,375	146,870	+23	2,784
Earthwork and drainage	1,684	40,249	7,262	636	11,433	3,128	64,392	206,240	113,202	+82	14,113
Streets and roads	24,176	24,968	21,437	32,960	54,493	17,257	175,291	793,062	650,807	+22	21,996
Public buildings, residential	.....	12,032	5,042	1,845	5,067	5,455	29,441	114,172	73,642	+55	42,862
Other public buildings	8,002	21,736	17,969	15,338	24,686	28,480	116,211	665,033	658,128	+ 1	10,917
Unclassified	22,232	20,261	19,520	8,035	21,981	24,679	116,708	521,512	319,770	+63	13,123
Total public	63,756	134,163	79,155	72,610	137,170	92,090	578,944	2,742,917	2,211,385	+24	110,528
Federal government (included in above classifications)	22,674	16,867	35,117	10,961	35,681	33,321	154,621	705,735	412,978	+71	60,039
Private											
Bridges	.....	.....	.....	125	.....	.....	125	1,625	2,790	−42	.....
Industrial buildings	10,690	63,740	47,566	78,433	47,752	7,339	255,520	1,033,899	777,052	+33	10,792
Mass housing	8,070	261,191	10,214	197,530	86,632	83,313	646,950	2,792,203	1,730,937	+61	14,093
Commercial buildings	8,408	41,412	3,817	46,027	28,277	10,351	138,292	654,834	503,836	+30	20,727
Unclassified	1,550	2,989	290	1,370	99,134	1,361	106,694	317,119	116,941	+171	379
Total private	28,718	369,332	61,887	323,485	261,795	102,364	1,147,581	4,799,680	3,131,556	+53	45,991
Total Engineering Construction:											
May, 1955—4 weeks	92,474	503,495	141,042	396,095	398,965	194,454	1,726,525	.....	.....	....	156,519
April, 1955—4 weeks	68,608	405,820	216,977	275,934	304,318	177,390	1,449,047	.....	.....	....	99,263
May, 1954—4 weeks	73,325	344,933	118,942	379,797	322,815	197,130	1,436,942	.....	.....	....	102,344
Five Months—1955	374,845	2,247,823	814,153	1,631,066	1,652,366	822,344	.....	7,542,597	.....	+41	641,858
Five Months—1954	310,305	1,422,296	678,567	1,243,249	1,114,878	573,646	.....	.....	5,342,941	....	438,025
% Change '54 to '55	+21	+58	+20	+31	+48	+43	.....	.....	.....	....	+47

Labor and Lumber Price Rises Bring New Highs for Indexes

Bargaining sessions in May resulted in higher wages for construction workers in several cities. These wage increases, plus a continued uptrend in lumber prices, pushed the ENR 20-cities Construction Cost and Building Cost Indexes to new all-time highs.

The Construction Cost Index for June is 655.96, based on 1913 = 100. That's a gain of 0.4% since May and 5.5% higher than a year ago. The Building Cost Index is now 464.82, also based on 1913 = 100. This is a 0.5% gain since May and a 5.7% increase over June 1954.

Common-labor unions got wage increases in May in three of ENR's 20 cities, ranging from 2.5 cents an hour in Pittsburgh to 7.5 cents and 8 cents in Philadelphia and Cincinnati. Of the three skilled trades, bricklayers won raises in four cities ranging from 7.5 cents to 13 cents per hour, including fringes. Carpenters in three cities got wage boosts of from 10 cents to 11.4 cents an hour. Structural ironworkers in five cities got from 7.5 cents to 12.5 cents.

Fir and pine prices are still going up. The ENR average for Douglas fir 2x4s increased 1.1% to a new high, nearly 16% above a year ago. Southern pine 2x4 prices are also up again, rising 0.9% on the average.

Prices of other major materials not included in the ENR index also moved to new highs. ENR's price average for sand increased 1.1%, 5.2% above a year ago. Brick prices started to move up, increasing 0.3%. That brings the total rise in a year to 1.9%. Ready-mix concrete prices climbed 0.5%—a gain of 3.7% in the past year.

Business Briefs . . .

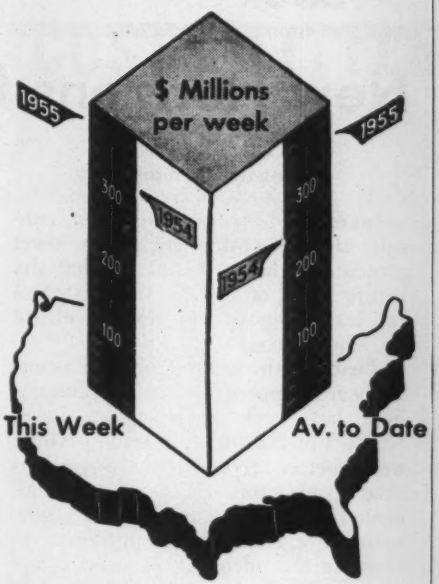
• **Steel expansion**—If Bethlehem Steel Corp. and Youngstown Sheet & Tube Co. are able to go through with their merger, their plans call for increasing annual capacity about 3,000,000 tons. That would mean several hundred million dollars of construction.

• **Merritt-Chapman & Scott Corp.** is dickering to acquire, through stock merger, two construction companies that have headquarters in New England and operate nationally. It is known that cost of acquisition would not exceed $7.5 million in stock.

• **California State Chamber of Commerce** has published a guide to the industrial resources of over 100 communities in the state. This is believed the first time such statistics have ever been assembled on a uniform basis.

Activity This Week

As reported to ENR
(In millions of dollars)



Amount of contracts let

	This Week	Cumulative 23 wks 1955	1954	% chge
Federal	$33.2	$766.8	$484.6	+58
State and municipal	151.8	2,268.7	1,989.3	+14
Total public	185.0	3,035.5	2,473.9	+23
Total private	193.3	5,209.5	3,398.9	+53
U. S. Total	$378.3	$8,245.0	$5,872.8	+40

Contracts by type of work

Waterworks	$10.6	$116.0	$103.4	+12
Sewerage	8.5	175.4	161.8	+8
Bridges	11.1	199.9	167.7	+19
Highways	59.7	897.8	728.0	+23
Earthwork, Waterways	31.7	247.0	123.3	+100
Buildings:				
Public, excl. hsg.	32.5	717.0	733.7	−2
Housg., public	7.6	128.7	86.0	+50
Housg., private	118.5	3,079.9	1,879.3	+64
Commercial	33.9	711.6	540.7	+32
Industrial	36.9	1,092.7	845.9	+29
Unclassified	27.3	879.0	503.0	+75
Total	$378.3	$8,245.0	$5,872.8	+40

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)	Week of June 2 1955	Cumulative 22 wks 1955	% chge '54-'55
Corporate securities	$113.2	$1,506.1	+14
State and municipal:			
All except housing	128.7	1,748.4	−27
Housing	...	46.2	+8
Federal loans	0.2	40.4	−24
Federal aid	...	95.0	+73
Total non-federal	$242.1	$3,436.1	−11
Federal appropriations:			
In U. S.	...	$59.2	+6
Outside U. S.	...	...	−100
Total new capital	$242.1	$3,495.3	−11

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction Cost	6/2†	655.96	315.32	137.51
	4/28†	653.26	314.02	136.95
Building Cost	6/2†	464.82	251.27	132.13
	4/28†	462.55	260.04	131.48
Volume	May	731	297	211
	Apr.	609	248	176

† Official monthly indexes for May & June

Sound powered TELEPHONES

NEED NO CURRENT

For temporary use on construction work, these instruments move with the job as it progresses. Also for permanent installation on industrial projects. Indoor or outdoor models in selective or common ringing and semi-selective or common talking.

Positive communication is assured at all times because no batteries or current of any kind are required. Cost of upkeep is negligible.

Photo shows Model "K" Phone in use on Niagara River project. General Contractors, Herbert F. Darling, Williamsville, N. Y.

WRITE FOR ILLUSTRATED CATALOG

HOSE-McCANN TELEPHONE CO., INC.
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BROOKLYN 32, N. Y.

Eagle "Swintek" Dredging

Ladder Eliminates Shut-Downs!

The traveling chain screens the intake nozzle—keeps out boulders and debris—eliminates shut-downs from clogging suction lines—protects pump. Carries boulders away from pumping zone. Cutter bars on the chain agitate the deposit—increase intake of solids—cut through tough clay strata—undercuts banks. Models for every requirement. Also Eagle Cutterhead Ladders and complete all-steel dredges. Send for Catalog 83.

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Eagle Iron Works

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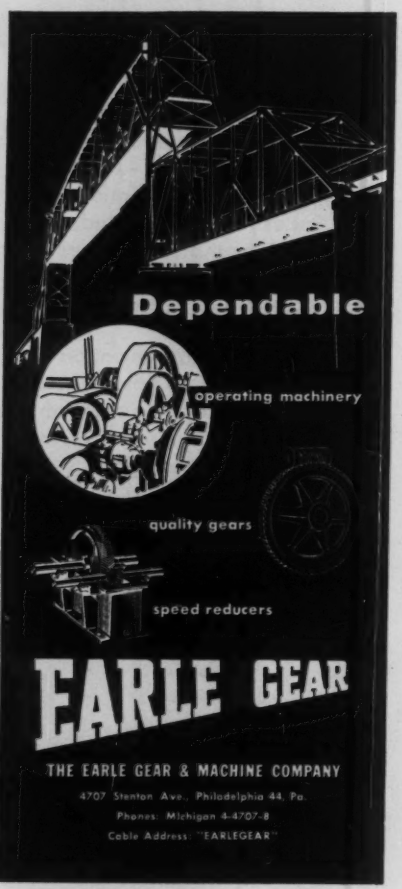
AGGREGATE WASHERS-CLASSIFIERS, LOG WASHERS, BREAKER BALLS.



LABOR

New Horizons for Apprentices

C. J. Harding
Assistant Editor

Increased unemployment—or radically shorter work week and a lower standard of living for all—is what the future holds unless the United States can learn to train and properly utilize its labor force.

That was the keynote of the Eastern Seaboard Apprenticeship Conference held last week at Kiamesha Lake, N. Y. For the building trades—which were better represented by unions than contractors—the conference afforded labor, management and government agencies an opportunity to examine the adequacy of existing apprenticeship training programs and to exchange ideas for their improvement in the rapidly changing economy of the nation.

Progress in the fields of automation, electronics and atomic energy, and a population that may reach 200 million by 1975, were the new horizons to which the conference looked. In them, the building trades saw not only a rapid advance in the volume of construction, but also the introduction of new designs, new materials and new techniques, particularly in the electrical, plumbing and pipefitting fields. The result is an ever increasing need for a larger force of skilled construction labor and one trained to meet the new demands.

• **No radical change**—Most of the trades were agreed that the present system of registered on-the-job apprenticeship training programs, supplemented by related classroom instruction, is the form of training best suited to the needs of the construction industry.

The need for continuous revaluation directed toward the good of all was recognized. And it was evident that the unions also were interested in maintaining the ability of their men to perform economic and competent work in order to justify present wage scales.

The need for less lip service to existing programs and for more active support, cooperation and promotion at the local levels was apparent. Many speakers stressed the necessity of avoiding "boom-bust" training, and New York's Industrial Commissioner Lubin recommended formation of skilled labor pools, the cost of which would be shared by all.

• **Some suggestions**—Receiving repeated attention through the panel and joint discussions were these:

• Quality—Need of compliance with program rotation schedules in order to train well-grounded journeymen and not specialists within the trade.

• Related classroom instruction—Existence of many unrealistic programs, inadequate facilities and lack of competent instructors.

• Selection—Need for more careful screening, which is now gaining wider acceptance with dollar savings to all.

• Safety—The need for further training in safety factors and procedures.

• Ratios—Re-examination of prevailing ratios of apprentices to journeymen, although present indications are that few, if any, programs have yet been hindered by this tough problem.

• Responsibility—Greater emphasis on the obligations of an apprentice to his union, his employer and his community.

• Later training—Necessity of expanding journeymen's training programs to keep abreast of new developments.

The Eastern Seaboard Apprenticeship Conference, representing New York, New Jersey and the New England states, was established 11 years ago. Massachusetts was selected as the host for the 1956 session.

Labor Gets Results

Fringe benefits gain in Canada, basic rates here

While substantial boosts in basic rates continue to set the pace for contract settlements with the building trades in the United States, Canadian construction workers are showing a preference for fringe benefits.

Under terms of a new two-year contract, expected to set a pattern for thousands more in the building trades, 5,000 rural carpenters in British Columbia have become the first large group in the construction industry to receive a 4% holiday pay—now equivalent to a two weeks' paid vacation. In addition, they'll get a 3-cent boost in basic rates, effective next April. Present rate is $2.25 an hour.

The agreement was negotiated by the Provincial Council of Carpenters, the Heavy Construction Association of British Columbia and the General Contractors Association. It excludes

3,000 Vancouver carpenters who are seeking a 7-hour day without loss of pay, 4% vacation pay and tool allowances.

In contrast to this, carpenters in Anderson, Ind., on strike since April 8, have won an immediate 20-cent boost in their basic rate (formerly $1.70) under a two-year contract which grants another 10-cent increase next year.

• **Increases in the U. S.**—Elsewhere, results of contract negotiations have included these:

• The laborers union and the Wisconsin Road Building Association have negotiated for the first time a single, state-wide contract, covering 5,000 laborers on highway construction in both rural and urban areas of Wisconsin.

• In Rochester, N. Y., where the carpenters were still on strike, two more building trades signed up for higher wages. Outside glaziers won a 15-cent increase (making the current rate $2.65) under a one-year contract which also grants subsistence pay of 50 cents a day for out-of-town work. Painters won a 12.5-cent boost, raising their rate to $2.89.

• Carpenters in Jacksonville, Fla., settled for a two-year contract, adding 5 cents more each year to their old scale of $2.50.

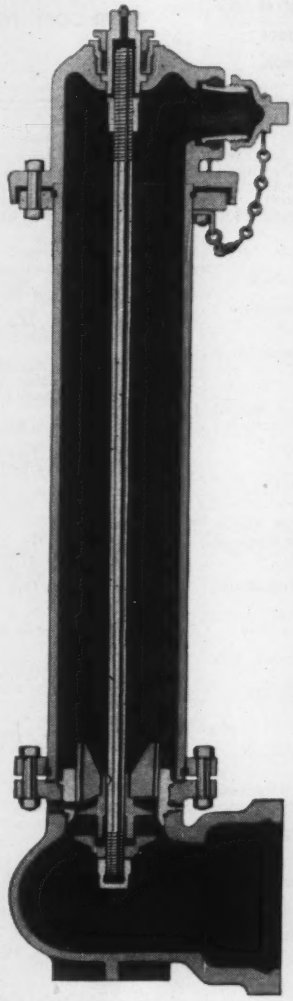
• Lathers in Detroit signed a one-year contract granting a 9-cent increase in the basic rate plus substantial gains in travel pay. The agreement retains the hourly 10-cent insurance allowance and the 13-cent vacation fund payment.

• Roofers in the Lake Winnebago area of Wisconsin won a 10-cent wage boost, retroactive to April 1, in a two-year contract granting another increase of 8 cents next year. And in Wisconsin's Fox River Valley, new two-year contracts give carpenters, bricklayers, cement finishers and laborers immediate increases ranging from 7 to 13 cents with further boosts of 5 cents next year.

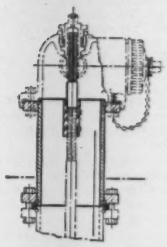
Employment

Contract construction employment remained near peak levels during 1954 and early 1955, according to BLS reports. After a significant gain of 153,000 between March and April, the first quarter of 1955 ended with 2,223,000 on construction payrolls—about 80,000 under early 1954 levels. It was down from a year ago for general contractors, electrical, plumbing and heating contractors, but up for such special trades as masonry and painting. Employment in highway and street construction showed an over-the-year increase.

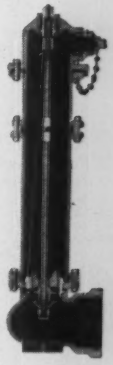
COSTS LESS TO INSTALL COSTS LITTLE TO MAINTAIN



A community can rest easy when it is protected by R. D. Wood Swivel-Joint Hydrants. Trouble can be a long time coming, but when it comes these great hydrants are ready. Installation and maintenance costs are low. They work instantly, reliably. Water-carrying areas are generously sized for full flow and maximum pressure. Every point of friction is protected by at least one bronze surface. Accurately formed threads and fitted parts make them interchangeable with other hydrants of the same size. Compression-type valve stops leakage when hydrant is broken in traffic accident.



Extension piece can be inserted between hydrant head and barrel, or between barrel and elbow, without shutting off water supply.



Breakable flange and stem coupling can be furnished at extra cost. Both are constructed so that a heavy blow will snap the ring and coupling, thus saving more costly damage to the hydrant itself. Both can be replaced quickly and inexpensively with spares. No digging necessary.

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Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

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We have galvanized thousands of tons of: gratings, beams, bars, perforated screens, sections, forms, tanks, fittings, rails, fastenings, etc. *Excellent facilities for pickling and oiling.*

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OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: June 23, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 23rd day of June 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Montgomery	FAC 55-8	South Amsterdam–Route 5S	2.56	9" Cem. Conc. Pavt. 24' Wide = 2.49 Mi.	$55,000	$1,050,000
	FASH 55-6	City of Amsterdam: Route 5S Arterial Connection Project U-488(5)	(0.44) (Int.)	Asp. Conc., Opt. = 0.04 Mi. Asp. Conc., Opt. (Int.) = 0.44 Mi. Misc. Work = 0.03 Mi. Comp. I-Beam Bridge 216'	Plans $25	
DISTRICT No. 3, Wm. Robinsdon, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Tompkins	FAC 55-3	City of Ithaca: Seneca and Green Streets Project U-427(7)	0.40	Asp. Conc., Ty. 1A = 0.06 Mi. Asp. Conc., Ty. 2A = 0.29 Mi. Misc. Work = 0.05 Mi. Hy. Sep. Comp. I-Beam 123.6'	$27,000 Plans $15	484,000
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester 1, N. Y.						
Monroe	FAC 55-9	Rochester City: Inner Loop (South Ave. to George St.) (Demol. Cont. No. 1) Project U-231(5)	0.27	Demolition of Buildings & Misc. Work	$2,500 Plans $10	45,000
Ontario	FAC 55-4	Canandaigua City: Lake Road By-Pass, Pt. 1	2.25	Asp. Conc., Type 2A	$60,000	1,086,000
	FASH 55-2	Lake Road By-Pass, Pt. 2		2 Closed Box Bridges 36.2' and 20.8'	Plans $15	
	FAC 55-5	Canandaigua City: East Lake Road Connection, Pt. 1				
	FASH 55-3	East Lake Road Connection, Pt. 2 Project U-338(9); U-544(3)				
DISTRICT No. 5, C. R. Waters, District Engineer, State Office Bldg., 65 Court St., Buffalo, N. Y.						
Cattaraugus	FAC 55-10	City of Salamanca: Clinton St. (Main St. to Wildwood	1.98	Asp. Conc., Ty. 2A = 1.11 Mi. Asp. Conc., Opt. =	$75,000	1,302,000
	C 55-11	Ave.) City of Salamanca: Parkway Drive Proj. U-356(6)		0.83 Mi. Misc. Work = 0.04 Mi. Comp. I-Beam Br. 650'	Plans $50	
Chautauqua	FAC 55-7	City of Jamestown, West 6th St. and West 5th St. Connection Project U-378(5)	0.14	Asp. Conc., Type 2A	$4,000 Plans $10	71,000
Erie and Niagara	FAC 55-12	Tonawanda City: Seymour St.–Barge Canal	0.79	Asp. Conc., Ty. 2A = 0.74 Mi. Misc. Work = 0.05 Mi.	$74,000	1,342,000
	FAC 55-13	North Tonawanda City: Barge Canal–River Road Project U-865(9)		Plate Girder Br. 448'	Plans $25	
DISTRICT No. 6, James H. Thomas, District Engineer, State Office Building, Hornell, N. Y.						
Chemung and Steuben	FARC 55-37	Big Flats–Gibson, S.H. 742	7.50	Asp. Conc., Opt. = 7.25 Mi.	$180,000	3,174,000
	FASH 55-5	East Corning–Horseheads, Pt. 1		Misc. Work = 0.25 Mi.	Plans $50	
		East Corning–Horseheads, Pt. 2 S.H. 53-6		2 Brs. Twin Box 20.3' Ea.		
		Horseheads–Corning, S.H. 358		1 Br. I-Beam 47.2'		
		Project U-661(4); F-661(4)		1 Br. Comp. I-Beam 67'		
Chemung	FARC 55-20	Erin–Van Etten–Spencer, Pt. 2, S.H. 8010	2.82	Asp. Conc., Opt. 1 Br. Reinf. Conc. T-Beam 48'	$40,000	738,000
		Lockwood–Van Etten, Pt. 3, S.H. 9114			Plans $15	
		Project F-102(3); 58(4)				
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, N. Y.						
Jefferson	FARC 55-13	West Corners–Redwood, S.H. 1577A	8.71	Asp. Conc., Opt.	$72,000	$1,295,000
		Redwood–Alexandria Bay, Pt. 2 S.H. 236			Plans $25	
		Redwood–St. Lawrence Co. Line, S.H. 1227				
		Project F-334(4); F-650(4)				
St. Lawrence	FARC 55-40	Harrisville–Fine, Pts. 1 & 3, S.H. 8337	8.96	Asp. Conc., Ty. 1A = 8.46 Mi. Bit. Mac. = 0.29 Mi.	$112,000	2,044,000
	FGRC 55-41	Fine–Star Lake, S.H. 8175 Project F-FG-260(2)		Gravel = 0.21 Mi. I-Beam Br. 118'	Plans $50	
				R.R. Sep. Plate Girder 67'		
St. Lawrence	FARC 55-38	Gouverneur Village, S.H. 5331	0.65	Asp. Conc., Optional	$50,000	839,000
		Project F-476(4)		Plate Girder Br. 300'	Plans $25	
DISTRICT No. 9, F. W. Donovan, District Engineer, 71 Frederick St., Binghamton 21F, N. Y.						
Broome	FARC 55-17	Sanitaria Springs–Harpursville S.H. 5243	3.91	9" Cem. Conc. Pavt. 24'–30' Wide = 3.89 Mi.	$72,000	1,331,000
		Nineveh–Afton, S.H. 5200	(0.72)	Asp. Conc. Opt. = 0.72 Mi. (Int. Rds.)	Plans $25	
		Nineveh, S. H. 209	(Acc.)	Misc. Work = 0.02 Mi. 1 Br. I-Beam 36'		
		Project F-496(9)		2 Br. Comp. I-Beam 60' & 146'		
Broome	FAC 55-6	City of Binghamton: Brandywine Ave. Ext. Pt. 2	0.60	Asp. Conc., Opt. = 0.50 Mi. Asp. Conc., Opt.	$56,000	1,020,000
	FASH 55-4	(Bevier St.): Brandywine Ave. Ext. Pt. 2, (North	(1.02)	(Int. & Acc. Rds.) = 1.02 Mi. Misc. Work = 0.10 Mi.	Plans $15	
		Chenango St. Int.) Project U-496(10)	(Acc.)	2 Hy Seps. Comp. I-Beam 150.3' & 301'		
Sullivan	FARC 55-42	Bloomingburg–Monticello, Pt. 2, S.H. 5457	2.91	9" Cem. Conc. Pavt. 50'–62' = 2.85 Mi. Misc. Work	$200,000	3,744,000
		Project F-495(8)	(2.38)	0.06 Mi. Cem. Conc. Pavt. (Acc. Rds.) = 0.56 Mi.	Plans $50	
			(Acc.)	Asp. Conc., Opt. (Serv. Rds.) = 1.82 Mi.		
				2 Hy. Seps. Comp. I-Beams 123.6' and 48'		
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Little East Neck Rd., Babylon, L. I., N. Y.						
Queens and Nassau	FARC 55-39	Conduit Blvd., Pt. 3 S.H. 1699A	1.81	Asp. Conc., Opt.	$85,000	1,554,000
		Project U-947(11)		R.C. Slab Bridge 21.2'	Plans $15	
Queens	FA HHE 55-1	Horace Harding Expressway, Section I (Contract 2)	1.65	9" Col. Cem. Conc. Pavt. 72' Wide = 1.30 Mi.	$330,000	6,010,000
		Project U-862(6)	(2.78)	Misc. Work = 0.35 Mi. Acc. Rd. Cem. Conc. Pavt. =	Plans $100	
			(Acc.)	0.58 Mi. Serv. Rd. Asp. Conc. Pavt. = 2.20 Mi.		
				2 Hy. Seps. Comp. I-Beams 159' and 162.8' 2 Ped. Overpasses I-Beams 121.3' and 128.5'		
				Repavt. Exist. Hy. Sep. Struct.		
Queens	FA HHE 55-2	Horace Harding Expressway, Section II (Contract 3B)	1.53	9" Col. Cem. Conc. Pavt. 72' Wide = 1.18 Mi.	$285,000	5,187,000
		Project U-862(3)	(3.93)	Misc. Work = 0.35 Mi. Acc. Rd. Cem. Conc. Pavt. =	Plans $100	
			(Acc.)	2.24 Mi. Acc. Rd. Asp. Conc. Opt. = 1.69 Mi.		
				2 Hy. Seps. Comp. I-Beam 106.7' and 111.4'		
Queens	FA HHE 55-3	Horace Harding Expressway,	0.69	9" Col. Cement Conc. Pavt. 72' Wide = 0.69 Mi.	$150,000	2,792,000
		Section II (Contract 4)	(Acc.)	Acc. Rd. Cem. Conc. Pavt. = 0.13 Mi.	Plans $100	
		Project U-862(4)	(1.57)	Serv. Rd. Asp. Conc., Opt. = 1.44 Mi.		
				2 Hy. Seps. Comp. I-Beams 109' and 82.9'		

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: June 21, 1955

Massachusetts Turnpike Authority

NOTICE TO CONTRACTORS

Sealed proposals for Highway and Bridge Construction for a section of the Massachusetts Turnpike in the Towns of Millbury and Auburn (CONTRACT NO. 51-082) will be received at the office of the Secretary-Treasurer, Massachusetts Turnpike Authority, Room 1059, 80 Boylston Street, Boston 16, Massachusetts until 11:00 A.M. of Tuesday, June 21, 1955, and immediately thereafter will be publicly opened and read in the Surrey Room on the lobby floor of the Hotel Touraine across the street from the Turnpike Authority's offices.

PROPOSAL GUARANTY: $150,000.

Charge for plans and proposal forms: $100.00, not refundable.

Charge for printed copy of Standard Specifications: $10.00, not refundable.

Complete information at said office of the Authority; at office of General Consulting Engineer to Authority: Howard, Needles, Tammen & Bergendoff, Room 1146, 80 Boylston Street, Boston 16, Massachusetts, and at office of Section Engineer: Hayden, Harding & Buchanan, 810 Park Square Building, Boston, Massachusetts.

Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to promptly undertake and complete the work.

By: WILLIAM F. CALLAHAN, Chairman
May 28, 1955

Bids: June 15, 1955

Massachusetts Turnpike Authority

NOTICE TO CONTRACTORS

Sealed proposals for construction of water mains, pumping stations and appurtenances in the Town of Blandford (CONTRACT NO. 51-032) will be received at the office of the Secretary-Treasurer, Massachusetts Turnpike Authority, Room 1059, 80 Boylston Street, Boston 16, Massachusetts until 11:00 A.M. of Wednesday, June 15, 1955, and immediately thereafter will be publicly opened and read in the Surrey Room on the lobby floor of the Hotel Touraine across the street from the Turnpike Authority's offices.

PROPOSAL GUARANTY: $3,000.

Charge for plans and proposal forms: $25.00, not refundable.

Charge for printed copy of Standard Specifications: $10.00, not refundable.

Complete information at said office of the Authority; at office of General Consulting Engineer to Authority: Howard, Needles, Tammen & Bergendoff, Room 1146, 80 Boylston Street, Boston 16, Massachusetts, and at office of Section Engineer: Thomas Worcester Corporation, 85 State Street, Boston, Massachusetts.

Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to promptly undertake and complete the work.

By: WILLIAM F. CALLAHAN, Chairman
May 28, 1955

Bids: June 20, 1955

Fairfax County, Virginia Integrated Sewerage System

(Advertisement for Bids)

Sealed bids will be received by the Board of County Supervisors of Fairfax County, Virginia, at the Office of the Sanitary Engineer, County of Fairfax, Fairfax, Virginia, until Monday, June 20, 1955, at 2:00 o'clock P.M., Eastern Daylight Time, for the construction of:

CONTRACT NO. 37-B Approximately 5047 lineal feet of 48-inch sanitary sewers and appurtenances, including 2132 lineal feet of tunnel.

Promptly thereafter they will be publicly opened and read in the Board of County Supervisors Room, County Office Building, Fairfax, Virginia.

Plans, specifications, and contract documents may be examined and copies thereof may be obtained at the Office of the Sanitary Engineer, upon payment of Ten Dollars ($10.00) per set, which amount shall not be returnable.

All bids must be on separate form furnished by the County.

Contractors, whether resident or non-resident in Virginia, will be required to show evidence of a Certificate of Registration as required by Chapter 7 of Title 54 of the Code of Virginia before their bids will be considered, if the bid is $20,000 or more.

Each bid must be accompanied by cash, or by the certified check of the bidder, made payable to the Director of Finance, County of Fairfax, Virginia, or by an acceptable bidder's bond in an amount not less than Five Percentum (5%) of the amount of the total bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

COUNTY OF FAIRFAX, VIRGINIA
By: Harry L. Hale
Sanitary Engineer

Dated: May 26, 1955

Bids: June 21, 1955

Contract NA-170.068

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
PASSENGER TERMINAL
OBSERVATION DECK—EAST ARCADE

Sealed proposals for constructing an observation deck over a portion of the existing east arcade of the Passenger Terminal at Newark Airport, N. J., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, June 21, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, June 9, 1955

Bids: June 28, 1955

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the City Purchasing Agent, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M., E.S.T., June 28, 1955, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Location: From the site of the Gambles Mill Road Pumping Station located on the south side of River Road at Gambles Mill Road, northward in right-of-way adjacent to the west line of Gambles Mill Road to a location near Roselawn Road, and in right-of-way near the University of Richmond's Power Plant and along the northeast edge of Westhampton Lake situated on the campus of the University of Richmond, to a location in College Road near Lakewood Avenue, in the City of Richmond, Virginia and partly in Henrico County, Virginia.

Type of Work: The work to be done is part of the Sewage Disposal Project, is entitled "Division F—Gambles Mill Road Trunk Sewer", and comprises the construction of approximately 5,100 linear feet of 30-inch reinforced concrete pipe sewer complete with all manholes, connecting sewers, house connections, a metering station, and all other structures as shown, specified and directed.

The Proposal must be submitted on the proposal forms included in the Contract Documents.

Each Proposal must be accompanied by a certified or cashier's check made payable to the City of Richmond, equal to 5% of the amount of the Proposal, or bid bond equal to 6% of the amount of the Proposal, or be covered by an annual bid bond in the amount of at least 6% of the Proposal.

The Proposal Guaranty is required as an evidence of good faith and as a guaranty that, if the Proposal of bidder is accepted, the bidder will enter into the formal written Contract and furnish satisfactory Performance Bond. Check will be forfeited or bid bond will become due and payable if the bidder whose Proposal is accepted fails to furnish the required Performance Bond, or fails to execute a formal written Contract. Check of successful bidder will be returned after the Contract is executed.

The Bureau of Purchases reserves the right to waive any informality in bids.

The Contract may be awarded by the Purchasing Agent to the lowest responsible bidder, who shall be determined in the manner provided by law and pursuant to the provisions of the City Charter.

The City may reject any or all bids and may award the Contract in the manner provided by law and pursuant to the provisions of the City Charter.

The unit prices bid will be carefully examined and compared with current values before recommending the award of the Contract. If in the opinion of the Director the unit prices submitted are substantially over or under accepted current values, it will be deemed sufficient reason to recommend the award of the Contract to another responsible bidder. In case of error in the extension of a price in the bid, the unit price shall govern.

Attention is directed to Chapter 7 of Title 54 of the Code of Virginia of 1950. The act requires all contractors and subcontractors bidding on any project where the cost of the undertaking of the bidder is $20,000.00 or more, to register with and obtain a certificate from the State Registration Board for Contractors. Bids from contractors not complying with this law will not be considered. Anyone bidding as a general contractor whose bid includes sub bids amounting separately to $20,000.00 or more is required to obtain evidence from such subcontractors that they have complied with the law.

Any contractor submitting a bid on this project amounting to $20,000.00 or more, must insert the following statement in his bid over his signature: "Registered as a contractor under Chapter 7 of Title 54 of the Code of Virginia of 1950. Certificate No. , 19 ".

Unless otherwise specified herein, bidders must enclose with their Proposals, in a separate sealed envelope, complete information as to experience, equipment and financial condition on the form provided. Failure to submit this statement will constitute basis for rejection of the bid. Bidders who have previously been awarded contracts for portions of the Sewage Disposal Project will not be required to submit this statement.

The Proposal, Instructions to Bidders, Contract, Performance Bond, Instructions to the Contractor, Specifications, Plans, and other Contract Documents may be examined at the office of the Director of the Department of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the Contract Documents may be obtained from the Director or the Engineers upon deposit of Twenty-five Dollars for each set, to be refunded upon the return of such set in good condition within 10 days after the opening of bids.

It shall be understood that all documents referred to in this Notice to Bidders shall be carefully examined and read and are all hereby made a part of the Proposal.

J. W. HUFFMAN,
City Purchasing Agent

OFFICIAL PROPOSAL

RATE: $1.80 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: July 5, 1955

City of Richmond, Virginia

NOTICE TO BIDDERS

Sealed Proposals will be received at the office of the City Purchasing Agent, 4th floor, Mosque Building, Laurel and Main Streets, Richmond, Virginia, until but not later than 11 o'clock A.M., E.S.T. July 5, 1955, at which time they will be publicly opened and read aloud, for the following work which may be awarded in whole or in part:

Location: From and including a connection with the river crossing inlet chamber, to be built under another contract, at a location near the City Lock, along the northeast bank of the James River to the outlet of the existing Shockoe Creek System west of 17th Street in the City of Richmond, Virginia.

Type of Work: The work to be done is part of the Sewage Disposal Project, is entitled "Division B—Schockoe Creek Intercepting Sewer" and comprises the construction of approximately 3,300 linear feet of 96-inch reinforced concrete pipe sewer complete with all manholes, intercepting and overflow structures, and other structures as shown, specified and directed.

The Proposal must be submitted on the proposal forms included in the Contract Documents.

Each Proposal must be accompanied by a certified or cashier's check made payable to the City of Richmond, equal to 5% of the amount of the Proposal, or bid bond equal to 6% of the amount of the Proposal, or be covered by an annual bid bond in the amount of at least 6% of the Proposal.

The Proposal Guaranty is required as an evidence of good faith and as a guaranty that, if the Proposal of bidder is accepted, the bidder will enter into the formal written Contract and furnish satisfactory Performance Bond. Check will be forfeited or bid bond will become due and payable if the bidder whose Proposal is accepted fails to furnish the required Performance Bond, or fails to execute a formal written Contract. Check of successful bidder will be returned after the Contract is executed.

The Bureau of Purchases reserves the right to waive any informality in bids.

The Contract may be awarded by the Purchasing Agent to the lowest responsible bidder, who shall be determined in the manner provided by law and pursuant to the provisions of the City Charter.

The City may reject any or all bids and may award the Contract in the manner provided by law and pursuant to the provisions of the City Charter.

The unit prices bid will be carefully examined and compared with current values before recommending the award of the Contract. If in the opinion of the Director the unit prices submitted are substantially over or under accepted current values, it will be deemed sufficient reason to recommend the award of the Contract to another responsible bidder. In case of error in the extension of a price in the bid, the unit price shall govern.

Attention is directed to Chapter 7 of Title 54 of the Code of Virginia of 1950. The act requires all contractors and subcontractors bidding on any project where the cost of the undertaking of the bidder is $20,000.00 or more, to register with and obtain a certificate from the State Registration Board for Contractors. Bids from contractors not complying with this law will not be considered. Anyone bidding as a general contractor whose bid includes sub bids amounting separately to $20,000.00 or more is required to obtain evidence from such subcontractors that they have complied with the law.

Any contractor submitting a bid on this project amouting to $20,000.00 or more, must insert the following statement in his bid over his signature: "Registered as a contractor under Chapter 7 of Title 54 of the Code of Virginia of 1950. Certificate No. ....., 19...."

Unless otherwise specified herein, bidders must enclose with their Proposals, in a separate sealed envelope, complete information as to experience, equipment and financial condition on the form provided. Failure to submit this statement will constitute basis for rejection of the bid. Bidders who have previously been awarded contracts for portions of the Sewage Disposal Project will not be required to submit this statement.

OFFICIAL PROPOSALS

The Proposal, Instructions to Bidders, Contract, Performance Bond, Instructions to the Contractor, Specifications, Plans, and other Contract Documents may be examined at the office of the Director of the Department of Public Works, 217 Governor Street, Richmond, Virginia, and at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. Copies of the Contract Documents may be obtained from the Director or the Engineers upon deposit of Twenty-five Dollars for each set, to be refunded upon the return of such set in good condition within 10 days after the opening of bids.

It shall be understood that all documents referred to in this Notice to Bidders shall be carefully examined and read and are all hereby made a part of the Proposal.

J. W. HUFFMAN,
City Purchasing Agent

Bids: July 19, 1955

Intercepting Sewers

NOTICE TO BIDDERS

SANITARY BOARD OF THE CITY OF WHEELING, WEST VIRGINIA

Sealed proposals, invited by the Sanitary Board of the City of Wheeling, will be received at the office of the Board, Room 504, Board of Trade Building, Wheeling, West Virginia, until 10:00 o'clock A.M., E. D. S. T. July 19, 1955, at which time they will be publicly opened and read aloud, and the contracts awarded as soon thereafter as practicable for the construction of Intercepting Sewers comprising approximately 73,800 feet of sewers from 8 inches to 54 inches in diameter.

The work is a part of the Sewage Disposal Project and is to be performed under the following Contracts:

Contract D 1—Ohio River Interceptor—North

Contract F-1—Wheeling Creek Interceptor Middle Section

Contract F-2—Theda Place, Long Run Connecting Sewer, Long Run Relief Sewer, Greggsville Connecting Sewer, Long Run New Sewer, Waddles Run, Bebel Street, Alfred Street, Bowman Street and Edgewood Street Sewers

Contract G-1—Wheeling Creek Interceptor—Upper Section and Triadelphia High School, Whitaker Lane, Springdale and Hillsdale Connecting Sewers

Contract G-2—Little Wheeling Creek Interceptor and Overbrook and Burkham Court Sewers

Bidders may submit a proposal for any Contract, all Contracts, or any combination of Contracts, but not for any part of any Contract.

The Instructions to Bidders, Proposal Agreement, Specifications, Plans and Form of Performance Bond may be examined at the office of the Sanitary Board of the City of Wheeling, Board of Trade Building, Wheeling, West Virginia; at the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois, and at F. W. Dodge Corporation, Professional Building, Pittsburgh 22, Pennsylvania.

Copies of all Plans and Contract Documents may be obtained from the office of the Sanitary Board, Board of Trade Building, Wheeling, West Virginia, and from the office of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois, upon the deposit of $25.00 for each set. The amount of deposit will be refunded if the sets are returned in good condition within 10 days after the opening of bids.

Each proposal must be accompanied by a bid bond, a certified check or a cashier's check on a solvent bank or trust company, made payable to the Sanitary Board of the City of Wheeling, in the amount of not less than five per cent of the total bid, as assurance that the bid is made in good faith.

The Sanitary Board of the City of Wheeling reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the Board, after all bids have been examined and canvassed.

SANITARY BOARD OF THE CITY OF WHEELING

Dated June 2, 1955

(Signed) James R. Flynn
Secretary

WHEELING, WEST VIRGINIA

OFFICIAL PROPOSALS

Bids: June 28, 1955

New Jersey Turnpike Authority

ADVERTISEMENT FOR PROPOSALS
CONTRACT NO. GR-26

Proposals are invited for Contracts Nos. GR-26, GR-26A and GR-26B which involve miscellaneous grading, drainage, paving and other incidental alteration work at Service Area 10S (Contract No. GR-26A), and at Service Area 10N (Contract No. GR-26B), both along the New Jersey Turnpike in Middlesex County, New Jersey. Contract No. GR-26 comprises all the work required under Contracts Nos. GR-26A and GR-26B.

The principal items of work for Contracts Nos. GR-26A and GR-26B include:

	Contract No. GR-26A	Contract No. GR-26B
Roadway Excavation, Cu. Yds.	4,000	7,600
Borrow Excavation, Cu. Yds.	2,200	4,500
New Bituminous Concrete Pavements, Sq. Yds.	3,180	7,250
Existing Pavements to be Resurfaced, Sq. Yds.	28,200	21,900
Concrete Sidewalk, Sq. Yds.	550	850
Curbs, Lin. Ft.	7,100	9,100
Storm Drains, Reinforced Concrete Pipe, Lin. Ft.	2,530	1,950
Underdrains, Lin. Ft.	3,000	3,500
Drop Inlets, Units	24	28
Relocating Fencing, Lin. Ft.	125	350
Relocating and Resetting Guard Rail, Lin. Ft.	960	350
Placing Topsoil, sq. Yds.	19,700	27,000
Seeding, Sq. Yds.	30,100	34,000
Revised and New Lighting Facilities	Lump Sum	Lump Sum

The principal items of work for Contract No. GR-26 equal the sum of the quantities listed for Contracts Nos. GR-26A and GR-26B. If a bidder submits a proposal for Contract No. GR-26, he must also submit proposals for Contracts Nos. GR-26A and GR-26B.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Daylight Saving Time on the morning of June 28, 1955, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after June 3, 1955, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Five Dollars ($5.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

May 31, 1955

U. S. Government

Sealed bids for Additional Court Facilities, U. S. Court House, Foley Square and Park St., New York, N. Y., will be received until 2:00 P.M., Eastern Daylight Saving Time, June 29, 1955, in Rm. No. 3, 250 Hudson Street, New York, N. Y., and then publicly opened in Room No. 3. Bidding material may be obtained from Public Buildings Service, Rm. 1304 GSA Bldg., 19th & F Sts., N.W., Wash., D. C. Executive 3-4900, Ex. 2397, or General Services Administration, 250 Hudson St., New York, N. Y. P. A. Strobel, Commissioner of Public Buildings, General Services Administration.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: June 16, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 16th day of June 1955, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer, Madison, Montgomery and Oneida	M.T. 55–7	New York State Thruway–Mohawk Section–Subs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10A, 10B, 11A, 12A, 12B, 12C, 12D, 13A, 14, 15 and 16	....	Furnish and Install 48,000 L.F. Cable Guide Railing. 123,000 L.F. Beam Type Guide Railing	$28,000 Plans $10	$513,000
Montgomery	M.T. 55–8	New York State Thruway–Mohawk Section–Subs. 12D, 13A and 14	....	Furnish and Install 4,000 L.F. Chain Link Fence	$900 Plans $10	17,000
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court St., Buffalo, N. Y.						
Erie	R.C. 55–10	Broadway–Depew, S.H. 914	3.18	Asp. Conc., Ty. 2A = 3.17 Mile Misc. Work = 0.01 Mi.	$11,000 Plans $10	208,000
DISTRICT No 6, J. H. Thomas, District Engineer, State Office Building, Hornell, N. Y.						
Allegany	FARC 55–36	Friendship–Bolivar, Pt. 2, S.H. 1246 Genesee–Portville, S.H. 1322 Proj. F-421(7)	3.81	Asp. Conc., Opt.	$27,000 Plans $10	490,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland	H.T. 55–5	New York State Thruway Hudson— Section, Sub. 8 (Hungry Hollow Rd.)	0.24	Asp. Conc., Opt. Hy. Sep. Comp. I-Beam 190.9'	$12,000 Plans $15	215,000
Westchester	R.C. 55–15	Port Chester Village: Main Street, S.H. 5662	1.22	Asp. Concrete Opt.	$6,000 Plans $10	$103,000
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
DISTRICT No. 4, E. G. H. Youngmann, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
DISTRICT No. 5, C. R. Waters, District Engineer, 65 Court St., Buffalo, N. Y.						
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Albany, Greene, Schenectady, Herkimer, Madison, Montgomery, Oneida, Cayuga, Seneca, Onondaga, Genesee, Monroe, Ontario, Erie, Orange and Ulster	T.T.S. 55–3	New York State Thruway–Catskill, Mohawk and Ontario Sections NOTE: Plans and proposals for contract No. T.T.S. 55-3 will be distributed only by our Albany and New York City offices but will be exhibited for examination in our Districts 1, 2, 3, 4, 5 and 8 offices where work is located.		Furnish and Erect Service Area Traffic Signs and Delineators	$8,000 Plans $10	151,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: July 12, 1955

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
ALTERATIONS AND REPAIRS TO THE MASSENA-TAYLORVILLE TRANSMISSION LINE, NEW YORK

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the Alterations and Repairs to the Massena-Taylorville Transmission Line, New York, in the following ways:

(1) If brought in person on the day of receiving bids, until 2:30 P. M. Eastern Daylight Saving Time on the 12th day of July, 1955, 270 Broadway, Hearing Room C on the 6th Floor New York, New York.

(2) Im mailed in, until 2:15 A.M. Eastern Daylight Saving Time on the 12th day of July, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

Bids will be entertained for furnishing the equipment and services and performing the work in accordance with the bidding schedule. Completion of the work will be required on or before January 1, 1957.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of ten ($10.00) dollars per initial set of contract drawings and five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the Proposal Forms included in and bound with the Contract Documents. Each proposal must be accompanied by a draft or certified check payable to the order of the Power Authority of the State of New York for the sum of $50,000.00.

The right is reserved to reject any and all bids.

W. S. CHAPIN,
GENERAL MANAGER

Bids: June 21, 1955

Pennsylvania Turnpike Commission Harrisburg, Pennsylvania

LACKAWANNA RIVER BRIDGE
NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Daylight Saving Time, the 21st day of June 1955, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and publicly opened and read aloud for the following contract:

For the construction of substructure of the Lackawanna River Bridge, Turnpike Section 37JK, part of the Northeastern Extension of the Pennsylvania Turnpike in Moosic and Taylor Boroughs over the Delaware and Hudson Railroad; the Delaware, Lackawanna and Western Railroad and Lackawanna River, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 4,630 feet north of the Centerline of US 11, at Turnpike Station 132, 79 in Moosic Borough, Lackawanna County; thence in a northerly direction 750 feet to Turnpike Station 140+29 at a point approximately 5,380 feet north of the centerline of US 11 in Taylor Borough, Lackawanna County, a distance of approximately 0.14 miles.

The approximate quantities of the principal items for the Lackawanna River Bridge substructure are as follows:

Class 2 Excavation.....2,940 cubic yards
Class 2x Excavation—
River Piers .....1,180 cubic yards
Class A Concrete in Piers & Pier Footings .....3,907 cubic yards
Class B Conc. Abutment and Abutment Footings .....785 cubic yards
Steel Reinforcing Bars.....464,550 pounds
Structural Steel .....3,400 pounds
H-Beam Bearing Piles (12-BP-53) .....9,298 linear feet

Copies of plans and specifications and other contract documents are on file and open to public inspection at the office of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on June 6, 1955. Plans, specifications and other contract documents will be available by this date for inspection or for mailing to prospective bidders. Copies of Specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans, and contract documents for this section, exclusive of specifications, may be purchased from the Pennsylvania Turnpike Commission for the sum of twenty (20) dollars for each set. No refund will be made for plans returned unless the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable by check or P. O. money order to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, and contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commission reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer

Harrisburg, Pennsylvania
June 1, 1955

OFFICIAL PROPOSALS

Bids: July 12, 1955

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR ELECTRICAL WORK AT
LONG SAULT DAM
NEAR MASSENA,
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATION NO. PA-5-14031
ST. LAWRENCE CONTRACT NO. 18

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the electrical work at Long Sault Dam near Massena, St. Lawrence County, New York in the following ways:

(1) If brought in person on the day of receiving bids until 10:30 A. M. Eastern Daylight Saving Time on the 12th day of July, 1955, 270 Broadway, Hearing Room C on the 6th floor, New York, New York.

(2) If mailed in, until 10:15 A. M. Eastern Daylight Saving Time on the 12th day of July, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above.

The principal items of work are:

(a) The installation of the following Authority-furnished equipment consisting of load and control centers, diesel generator, gate guide heaters, communication system, lighting transformers and all wire and cable.

(b) The furnishing and installing of the exposed conduit and grounding systems, lighting system, power cabinets and crane conductor system.

(c) The installation of electrical equipment for items of a basically non-electrical nature; such as: fixed gate hoists, compressors, pumps, water treatment equipment, heaters, fans and other miscellaneous equipment.

The work shall be completed on or before December 1, 1958.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto, 2, Ontario, may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty-five ($25.00) dollars per initial set and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Each proposal must be accompanied by a draft or certified check payable to the order of Power Authority of the State of New York for the sum of $75,000.00.

The right is reserved to reject any or all bids.

W. S. CHAPIN
5/25/55 GENERAL MANAGER

Bids: June 21, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

TERRILL ROAD, PROJECT S-142(2)

Construction of Terrill Road from South Avenue to Raritan Road in the City of Plainfield, Borough of Fanwood and Township of Scotch Plains, Union County, Federal Aid Secondary Project No. S-142(2). Length 1.83 miles. The principal items of construction are:

Estimated:

- 3,972 cu. yds. Roadway Excavation, Unclass.
- 22,557 sq. yds. 5" Macadam Base Course
- 22,557 sq. yds. 3" Mod. Pen. Macadam
- 4,244 tons Bituminous Concrete
- 4,357 lin. ft. Drainage
- 1 unit Corr. Metal Plate Pipe Arch
- 50 units Inlets and Manholes

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, June 21, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the "Required Provisions-Federal-Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.; (2) a proposal bond for a sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a non-collusion affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: June 21, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 38, SECTION 1D

Route 38, Section 1D, from Haddonfield Road to Coopertown Road, Closing Island Openings, Delaware Township, Camden County. The principal items of work are:

Estimated:

- 800 cu. yds. Roadway Excavation—Earth
- 2,506 sq. yds. 4" Topsoiling
- 11 tons Pavement Type MA-BC-1
- 2,136 sq. yds. Conc. Pavement Surface, Rein. 9" thick
- 10,096 lin. ft. White Concrete Vertical Curb

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., on Tuesday, June 21, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00; (2) a proposal bond for a sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a Non-collusion Affidavit; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4428) will be received at Cody, Wyoming until July 14, 1955, for furnishing labor and materials for switchyards for Hanover Pumping Plants No. 1, No. 2, No. 3, and No. 4 and Bluff Pumping Plants No. 1 and No. 2; Big Horn Basin Division, Hanover-Bluff Unit, Wyoming, Missouri River Basin Project. Location near Worland, Wyoming. Principal items are 375 cu. yds. excavation; 48 cu. yds. concrete, 10,500 pounds furnishing and erecting steel structures; 6 transformers, furnishing and installing power and distribution transformers; 18 switches, furnishing and installing switches; lump sum furnishing and constructing approximately 375 feet of 34.5 kilovolt tap line; and other work. Completion time 150 days. For particulars, address Bureau of Reclamation, P. O. Box 2130, Billings, Montana; P. O. Box 839, Cody, Wyoming; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4442) will be received at Albuquerque, New Mexico until July 19, 1955, for furnishing labor and materials for earthwork, clearing, and structures for rehabilitation of drains, Unit CE-1, Middle Rio Grande Project, New Mexico. Location north of Albuquerque, New Mexico. Principal items are 54,300 cu. yds. excavation; lump sum clearing, cleaning, and removing existing structures for drains; 2,210 lin. ft. corrugated-metal pipe, 18- to 54-inch; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: June 21, 1955

State of New Jersey
State Highway Dept., Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

NEW BRIDGE ROAD and BRIDGE OVER HACKENSACK RIVER—Project S-200(1) Construction of New Bridge Road from Main Street to River Road plus Bridge over the Hackensack River in the Boroughs of River Edge and New Milford and Township of Teaneck, Bergen County, Federal Aid Secondary Project No. S-200(1). Length 0.511 miles. The principal items of construction are:

Estimated:	Roadway Items
7,177	cu. yds. Wet Excavation
54,415	cu. yds. Borrow Excavation
21,447	sq. yds. 5" Macadam Base Course
18,226	sq. yds. 8" Mod. Pen. Macadam
2,744	tons Bituminous Concrete
906	cu. yds. Class "C" Concrete
109,155	lbs. Reinforcing Steel
	Bridge Items
728	cu. yds. Foundation Excavation
280	cu. yds. Class "B" Concrete
1,326	cu. yds. Class "C" Concrete
300,464	lbs. Structural Steel
98,488	lbs. Reinforcing Steel
9,180	lin. ft. Timber Piles

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, June 21, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and P. L. 413, 82nd Congress, and is to be performed in accordance with the "Required Provisions-Federal-Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hour. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Bldg., 1035 Parkway Ave., Trenton, N. J. with a check drawn to the order of the State Highway Department. A charge of $5. will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent of the amount of the bid, provided that the said certified check shall not be less than $500. nor more than $20,000.; (2) a proposal bond for a sum of not less than fifty percent of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a non-collusion affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.80 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Discount **of 10% is allowed if full payment is made in advance for 4 consecutive insertions.**

POSITION WANTED undisplayed rate is one-half of above rate, payable in advance.

Box Numbers **in care of our New York, Chicago and San Francisco Offices count as one additional line.**

Replies **are forwarded each day as received at each of the offices mentioned without additional charge.**

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $20.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

An advertising inch **is measured ⅞ inch vertically on one col. 3 col.—30 inches to a page. E.N.R.**

SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for June 23rd issue, closing June 13th.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Estimator, for firm doing extensive sewer, watermain, treatment plant, heavy construction. Must be graduate engineer or have extensive engineering background, with ability to obtain price and job information. Permanent position for qualified applicant. P-6074, Engineering News-Record.

Construction Foreman for firm engaged in extensive sewer, water main and treatment plant facilities. Permanent position in N. Y. State area. Only qualified applicants with broad experience. P-6595, Engineering News-Record.

Concrete Paving Superintendent—Thoroughly experienced in all phases of highway and airport construction, including excavation, drainage, and paving. Must be able to handle complete supervision of concrete paving. Excellent opportunity for qualified man. Western New York Area. P-6514, Engineering News-Record.

Wanted: Asphalt plant superintendent for new high output plant permanently located and now operating in growing southern city. Must know asphalt mixes and have a good mechanical know-how. P-6649, Engineering News-Record.

Civil Engineer, experienced in the design and layout of subdivisions, sewers, water mains and grading. This is a career opening in a consulting engineer's office. Starting salary, $5200.00. State experience, education and give references. Lester V. Johnson Associates, 2309 Wilson Boulevard, Arlington 1, Virginia.

Wanted Field Engineer, transitman, rodman qualified to stake out highway location cross-section and stake line and grade for structures in New York State. Reply References, education, age and salary required. Reply P-6488, Engineering News-Record.

Foreman-Superintendent—Thoroughly experi-enced in field supervision in excavation and grading on heavy construction projects. Western New York State. P-6517, Engineering News-Record.

Superintendent-Foreman — Aggressive and thoroughly experienced in blacktop paving, capable of organizing and directing complete projects, including grading, drainage, and paving. Excellent opportunity with a substantial firm. New York State. P-6518, Engineering News-Record.

Attention . . .

EMPLOYMENT ADVERTISERS

Effective with the first July issue, a new section will start in ENGINEERING NEWS-RECORD. We will head this section: EMPLOYMENT OPPORTUNITIES. All Displayed Employment Opportunity advertising will be placed in this new section, with the exception of those advertisers who contract for run-of-book position. New advertisers will be billed at the transient rate of $24.25 unless on contract. Contract rates furnished on request. Advertisements are subject to Agency Commission.

FABRICATED STRUCTURAL STEEL AND PLATE ESTIMATORS

Large Southern fabricator has openings for fabricated structural and/or plate estimators familiar with field erection costs. Preferably engineering graduates with two years practical experience. Forward resume with salary expected to:

P-6702, Engineering News-Record
330 West 42nd Street, New York 36, N. Y.

All replies will be confidential

POSITIONS VACANT

Mechanical Engineer—Experienced M.E. with degree to take complete charge of power plant for large Midwest dairy. Age 27 to 35 with 5 years in power plant; capable of engineering, selecting equipment and maintaining steam, refrigeration, electrical generation equipment and distribution systems. Write complete qualifications in first letter, including references and salary desired. P-6619, Engineering News-Record.

Chief Draftsman for old established struc-tural fabricating shop in Central Indiana. 20,000 tons per year. Tier and mill building and bridge experience desirable. Write detailed summary of experience and salary expected. P-6556, Engineering News-Record.

Asst. City Engineer. Must be able to super-vise a medium-sized staff of professional and sub-professional engineers in the perparation of plans for street, sanitary, and water installations. Mich. P.E. required. Immediate opening for ambitious man with experience. Salary $7,736 to $8,684 per yr. Submit brochure with request for bulletin and application, Department of Personnel, City Hall, Dearborn, Mich.

Construction Supt; Civil Engineer graduate preferred for sewers, watermain, treatment plant work. P-6698, Engineering News-Record.

Construction Engineer for general contractor on engineering projects. P-6699, Engineering News-Record.

Civil Engineer, with Land Surveying expe-rience, experienced in the design and layout of subdivisions, sewers, water mains, and grading. Salary commensurate with ability. Permanent position. Brockway, Weber and Brockway, Engineers, Inc., 402 Guaranty Building, West Palm Beach, Florida.

Construction Superintendent for General Con-tractor, New York-New Jersey area. Write giving resume of experience and salary requirements. P-6683, Engineering News-Record.

Wanted: Carpeter foreman experienced in concrete form work on bridges. Contact J. F. Beasley Constr. Co., 20 North Wacker Drive Chicago, Illinois, Phone ST 2-7588.

Construction Engineer—For young, expand-ing building contractor operating throughout the U. S. This is for a specific job in Kentucky but represents opportunity for young graduate engineer with field and office experience, to become part of permanent organization. Write full details of education, experience, personal information, references and salary requirements to—Blount Brothers Construction Co. P. O. Box 949 Montgomery, Alabama.

(Continued on following page)

OPPORTUNITIES FOR ENGINEERS

UNION CARBIDE and CARBON Corp.

The General Engineering Department of the Electro Metallurgical Company has the Following Diversified and Interesting Openings for Graduated Engineers and Draftsmen:

PROJECT ENGINEER, to head up a complete project, both the design and construction phases thereof; to supervise overall engineering, material acquisition, cost and construction of project. Top flight engineer with broad experience required.

COST ENGINEER, to prepare construction cost estimates and to control construction expenditures; should be thoroughly familiar with general construction costs throughout the United States. Minimum of five years experience essential.

CONSTRUCTION ENGINEER, under a Project Engineer to follow the construction work of one or more projects and supervise the field work thereof. On major projects would actually supervise field forces and as such would assume the duties of Resident engineer. Top flight engineer, whose major experience has been in large-scale construction.

MECHANICAL ENGINEERS, to supervise the mechanical design of projects of varying magnitude. Responsible for the overall mechanical design work and guidance of capable designers and draftsmen for each project. Minimum of ten years experience essential.

SUPERVISING DESIGN ENGINEERS in the following categories: one each Mechanical, Electrical, Chemical, Civil. Capable men to design or supervise design of major structures, buildings, services, and utilities for varying sized projects. Select machinery and equipment; prepare cost estimates, specifications, requisitions; make bid comparisons for equipment purchases and construction costs. When necessary, supervise erection of buildings and installation of machinery, etc. at job site. Five to ten years experience essential.

SERVICE ENGINEERS—qualified mechanical engineers preferred, with five to ten years experience in trouble-shooting on heavy industry equipment and processes. Must be able to analyze production and/or equipment inadequacies, make constructive recommendations for improvement, and put same into effect.

SENIOR DESIGN ENGINEER-MECHANICAL, with a minimum of five years experience. Able to lay out and design machinery, structures and equipment in heavy industry plants, with special emphasis on materials-handling installations, dust collection, and fluid mechanics. Capable of directing work of Draftsmen, Detailers, and Junior Design Engineers.

JUNIOR DESIGN ENGINEER-MECHANICAL, with three to five years experience, of qualifications similar to above but with less experience required.

DRAFTSMEN (3—Mechanical, 3—Electrical, 4—Structural) with a minimum of three years experience. Work would involve layout of machinery, buildings, size and arrangement of piping, and electrical wiring diagrams and layouts.

Please send complete resume to:

Electro Metallurgical Company
A Division of Union Carbide and Carbon Corp.
The Personnel Evaluation Office
Niagara Falls, New York

HIGHWAY ENGINEERS

Designers, Detailers and Draftsmen for office work on highways and expressways. Long-term projects. Desire experience or training including alignment and profile computations, geometric design of interchanges and associated work.

Employee Benefit and Retirement Plan, paid vacations and holidays, sick leave. Modern, air conditioned offices in downtown St. Louis. Please write fully to or inquire at

SVERDRUP & PARCEL ENGINEERING CO.

1625 Eye Street, N. W.
Washington 6, D. C.

1134 Locust
St. Louis 1, Mo.

ENGINEERS

Civil Project Engineer

Approx. 5-10 years' experience, N. Y. State license preferred. Must be able to supervise draftsmen & engineers on layouts, grading, drainage, paving & utilities for highways, airports and industrial developments.

Civil Engineer Designer-Draftsman

Approx. 5 years' experience on layouts, gradings, drainage, paving & utilities for highways, airports and industrial developments.

Structural Designers

Structural steel & reinforced concrete. Degree required. N. Y. State license preferred.

Salary Commensurate With Experience

Please send resume to

SEELYE STEVENSON VALUE & KNECHT
101 Park Ave. New York

ENGINEERS

OVERSEAS
CIVIL
MECHANICAL

Graduate engineer thoroughly experienced in heavy construction operations: good pay, transportation furnished. Apply in person or send resume.

METCALFE, HAMILTON, SMITH BECK COMPANIES
80 Varick Str., N.Y.C., 8th Floor

HIGHWAY ENGINEERS

Designers, Detailers and Draftsmen

For Field and Office Work on Toll Highway Projects. Permanent employment.

P. O. Box 361 Mobile, Alabama

WANTED SALESMEN
and/or Manufacturers Representatives

To sell hydraulic portable equipment used in construction field. Applicant should be between thirty and forty years of age and have some previous experience in the sale of construction equipment. Address your qualifications to:

ACME EQUIPMENT, INC.
505 Central Trust Building Altoona, Pa.

POSITIONS VACANT

(Continued from preceding page)

Wanted: Experienced estimator for building contractor located in Southern Connecticut. P-6708, Engineering News-Record.

Young man, architectural or construction background, to promote building products for basic metal trade association. Salary $5,000 to $7,000 depending on qualifications. Headquarters NYC, some travel. P-6707, Engineering News-Record.

Help Wanted—Male structural steel detailer, experienced first class, permanent position—excellent opportunity for right party. Box 955, New Haven, Conn.

Help Wanted—Male experienced graduate engineer for structural steel take-off and estimating—Box 955, New Haven, Conn.

POSITIONS WANTED

Bridge construction superintendent nine years experience, pile driving, foundation excavation, form and concrete work, 32 years old, sober, will travel U. S., PW-6523, Engineering News-Record.

Management and Administration of engineering, construction, operations or maintenance. Graduate registered engineer. Age 40. Outstanding record municipal, private, governmental work, including construction projects of magnitude. Currently completing $11,500,000 school construction program. Experienced and capable all phases planning, contract administration, inspection, completion and contract closing. PW-6487, Engineering News-Record.

Construction Executive, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-6635, Engineering News-Record.

Material Man—purchasing, expediting, receiving, storing. Tool rooms, warehouses. Age 58. 35 yrs. construction experience. PW-6621, Engineering News-Record.

Civil Engineer—26—single. Four years experience in the field on bridges and highways. Desires to go overseas. PW-6636, Engineering News-Record.

Energetic young resident engineer available, versatile, graduate, 13 years varied experience, surveys, location, supervision large industrial and military projects. Will relocate Canada, U. S. or foreign. Position must involve wide responsibilities. PW-6630, Engineering News-Record.

Graduate Civil Engineer, 32, married. Employed 6 years by consulting engineer on construction of three turnpikes. Directed asphalt, concrete and soils staffs. Desire to join contractors estimating department. PW-6658, Engineering News-Record.

Construction Superintendent: 30 years experience of full responsibility on hospitals, schools, industrial & commercial bldgs., housing projects, sewage treatment plants. Position of similar responsibility desired with progressive organization. Over 25 years experience, registered eng. Prefer N. J., Eastern Penna. or Southern N. Y. PW-6716, Engineering News-Record.

Engineer, BSCE, 5 yrs civil exp in hydraulics, large pipelines, chlorination, small structures, surveying, specs, industrial processes; 3 yrs mech exp in machine tool and mech equip design; 1 yr elec dist system and elec circuits. Seeks structral position; consider other responsible offers. Vet, 33, married. PW-6664, Engineering News-Record.

(Continued on page 92)

ENGINEERS ARCHITECTS

A well established engineering construction company has immediate openings available in Cincinnati, Ohio and Cleveland, Ohio office for qualified engineers, group leaders, and designers in one or more of the following catagories:

PROCESS PIPING
INSTRUMENTATION
PACKAGING
TANKS AND VESSELS
BOILERHOUSES
CONVEYORS
HEATING AND VENTILATING
PROCESS EQUIPMENT LAYOUT
LIGHTING LAYOUTS AND CONTROLS
INDUSTRIAL POWER LAYOUTS

Limited number of openings for architects experienced in all phases of industrial plant design.

These positions offer opportunities for long term employment with good salaries, paid vacation and holidays, sick leave allowance, group insurance and hospitalization program, and moving allowance.

If qualified, please submit complete resume stating experience, education, salary requirements and earliest date available to:

The H. K. Ferguson Company

Engineers and Builders

FERGUSON BUILDING **1783 EAST 11TH STREET** **CLEVELAND 14, OHIO**

THE AUSTIN COMPANY

Offers Opportunities to Qualified Engineers and Draftsmen

Positions are open to capable engineers and draftsmen who can design and/or prepare plans and specifications for complete industrial plants, all related structures, and building equipment falling within the following catagories:

DESIGNERS—Office buildings, laboratories, and industrial buildings. Positions require those possessing vision and creativeness.

STRUCTURAL—Industrial buildings and miscellaneous structures of steel and reinforced concrete.

MECHANICAL—Heating, air conditioning, ventilation systems, process piping, conveying systems, plumbing, sewer, and sprinkler systems.

ELECTRICAL — Industrial lighting and power distribution and controls.

DETAILERS—Structural steel fabrication for industrial buildings.

Assignments are in connection with our long-established offices located on the East coast and Midwest areas. Desirable working condition, established vacation and sick leave plans, also paid holidays.

Full particulars as to education, experience, and compensation desired should be given in first letter.

NATIONAL HEADQUARTERS
16112 Euclid Ave. Cleveland 12, Ohio

EXPERIENCED HIGHWAY CONSTRUCTION PERSONNEL

Large Nationally known Highway Construction Company, headquartering in Upper Midwest, with operations, branch offices and equipment yards located throughout the country, is looking for experienced engineer-estimator on highway construction. Preferably young man. Must be ambitious and willing to work. Considerable travel required.

Also several Top Grade Superintendents and General Foremen experienced in Highway Grading and/or Paving and Bridge Construction to work under regional or project managers. Good Salaries and future participation pension and Profit Sharing Plans and Stock Ownership for right men.

P-6623, Engineering News-Record, 330 W. 42 St., New York 36, N. Y.

DEPUTY BUILDING INSPECTION SUPERVISOR: Graduation from an accredited four years college with degree in structural or architectural engineering. Seven years of experience in the structural design of buildings and some experience in examination of plans and specifications of building projects and applications for building permits. Salary $5772-$6812 per year.

ARCHITECT I: Graduation from a college or university of recognized standing with a degree in architecture and 2 years experience in architectural planning, design or drafting. Salary $4628-$5460 per year.

Complete details by writing to:

DIRECTOR OF PERSONNEL
Municipal Building, Hartford, Conn.

DESIGN ENGINEERS

Permanent Openings Available at Our Cleveland, Ohio Offices for qualified DESIGNERS experienced in:

. . . . STRUCTURAL STEEL
. . . . REINFORCED CONCRETE
. . . . PRESSURE VESSEL
. . . . PROCESS PIPING
. . . . PROCESS HEATERS
. . . . EQUIPMENT SPECIFICATIONS
. . . . INSTRUMENT SPECIFICATIONS
. . . . HEAVY MACHINES
- - - - Top Hourly Rates
- - - - Pension Plan
- - - - Moving Expense Allowance

WRITE—giving complete details of experience, education, age, etc.—to:

E. A. Kolner,
ARTHUR G. McKEE & COMPANY
2300 Chester Ave. Cleveland 1, Ohio

POSITIONS WANTED

(Continued from page 90)

Project Engineer—Registered engineer, age 38 married, BE '37, experienced in design and construction of highways, bridges, revenue bond projects. Excellent administrator. Presently employed. Desire to better position by change. PW-6674, Engineering News-Record.

Age 35, MS ME degree and 9 years of design, construction and supervisory experience in industrial hydraulics, hydraumetallurgy, steam, air, heating and ventilating installations, piping design, pumping stations and plant layout. Seeks responsible position preferably with a consulting or contracting co. PW-6676, Engineering News-Record.

Civil Engineer—BCE—28, 7 years construction, supervision and administrative experience desires position with contractor engage in home or commercial construction preferably East. PW-6675, Engineering News-Record.

Contractor's engineer estimator—age 52—30 years experience competitive bidding public work. Assume full responsibility for bid preperation and the usual G.C. office routine. Experienced includes most every type of structure and includes jobs up to 15000000- in sieg. Open for connection calling for top flight man. PW-6680, Engineering News-Record.

Electrical Draftsman & Designer over 10 yrs. experience on design and installation of electrical facilities in plant construction, modernization and machine control. Married, age 34. Desires opportunity to utilize experience with progressive company. Will relocate. PW-6706, Engineering News-Record.

SELLING OPPORTUNITY WANTED

Manufacturers Agent seeks additional lines. Straight commission or jobbing basis. Excellent connections architects, contractors, eastern New York State. RA-6647, Engineering News-Record.

SPECIAL SERVICES

Wanted by construction supt-project mgr.- construction mgr. with years of proven work, with experience in: power plants, chemical plants, paper mills, blast furnaces, aluminum production mills, water treatment, highways, water & sewage systems, handling all fazes of job. Have complete organization available for: foundation-concrete structural steel-roofing & siding—mechanical installation-piping installation-office engineers, field engineer, payroll dept, cost engineer, purchasing agent. This organization is geared to handle several small projects or one large one—available July 15th, 1955. If you are interested in a top flight organization who has the know how please let me hear from you. SS-6677, Engineering News-Record.

A group of professors and engineers will undertake the design of structural buildings, highway bridges, foundations, etc. Complete work with design sheets and construction drawings can be produced fast and economically with latest methods of design. Prefer subcontract on an hour basis or per drawing basis. SS-6673, Engineering News-Record.

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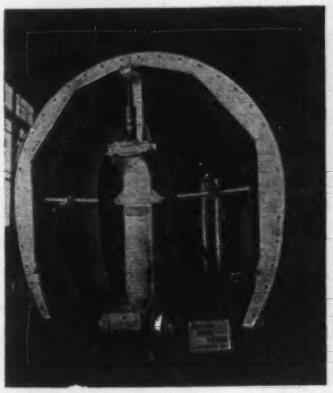

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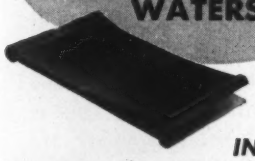

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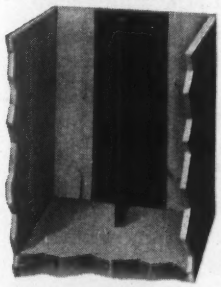

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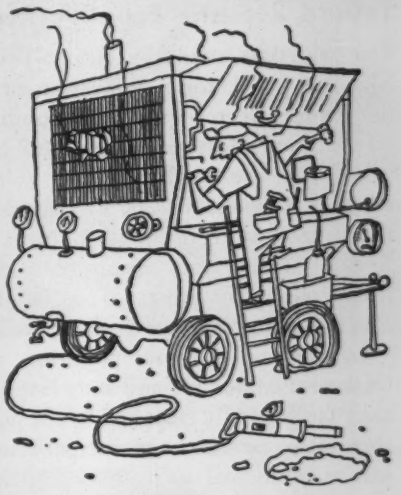

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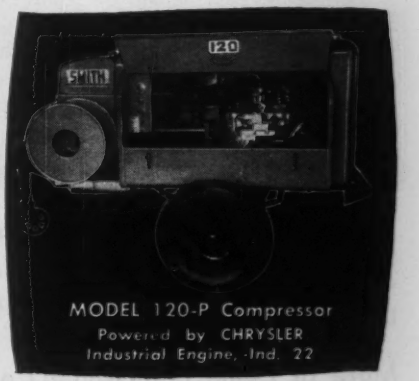

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EDITORIALS

Toward Realistic Pollution Regulations

THE PROPOSAL made by Henry Taylor in our issue of May 19, p. 14, for modification of air pollution ordinances to give recognition to conditions that apply to refuse incinerators makes sense and has a broader significance than the article indicates. Mr. Taylor notes that existing ordinances were written to control fouling of the air by burning of industrial fuels, and that it is wrong to apply these same measures to burning of refuse in municipal incinerators. What he says of air pollution also has its application to water pollution.

In the case of water pollution, municipal sewerage treatment came first, and state laws and interstate directives are generally clear and to the point in the standards they set to be met in municipal sewage treatment. But just as municipal air pollutors (incinerators) now need ordinances that fit their peculiar case, the dischargers of waterborne industrial wastes have long argued against application of sewage treatment standards—such as the limit on BOD—to industrial waste treatment.

The newly adopted policy of the Ohio River Valley Water Sanitation Commission, which recognizes the individuality of each industrial plant's discharge, plus the latitude of permissible pollution as river uses vary, embodies the appropriate type of thinking (ENR May 5, p. 25). Such an industrial waste control policy recognizes that industrial wastes are not the same as sewage; that they vary among themselves; and that they even vary in treatment requirements depending on where they are discharged.

This kind of thinking can evolve regulations that are sensible limits on varying conditions of water pollution in need of control. The same kind of thinking should be applied to air pollution controls.

More to Come From Miami Conservancy

FOR MORE THAN 30 YEARS, Ohio's Miami Conservancy District has been a prime example of basinwide flood control. Its project was the largest of its kind when completed in 1922, and much has been learned from its design and its operation through the years. Now it is apparent that we are not through learning from works on the Great Miami River. For the Conservancy District once again has engineers at work in a river-use study that may be as fruitful in its results as was the original dam-building program long since completed.

The Conservancy District has a harnessed river, a controlled watershed. Present studies are to determine how best it can attain a conserved river, a more fully used water source. Back in 1920, the future growth of Dayton, Middletown, Hamilton and other cities in the basin depended on controlling flood waters of the Great Miami and its tributaries. Today, future growth of these communities is in the hands of those who will improve the stream as a supply of water and as a carrier of treated fluid wastes. Minimum flow will be raised by additional reservoirs upstream; excess flow will be conserved by an operational type of groundwater recharge (ENR May 19, p. 37).

As for the particular lessons that will come out of the current studies by Ohio's famed Miami Conservancy District, they can be expected to include the following: how to evaluate a river, how to anticipate its use and its pollution load, and then (of prime importance) how to apportion the cost of planned river improvements among municipalities and industries to be benefitted. Further, this new look at a river basin that once was believed to be well developed indicates that current plans for other river basins might be improved by a fresh reappraisal.

Go Slow on Nuclear Power

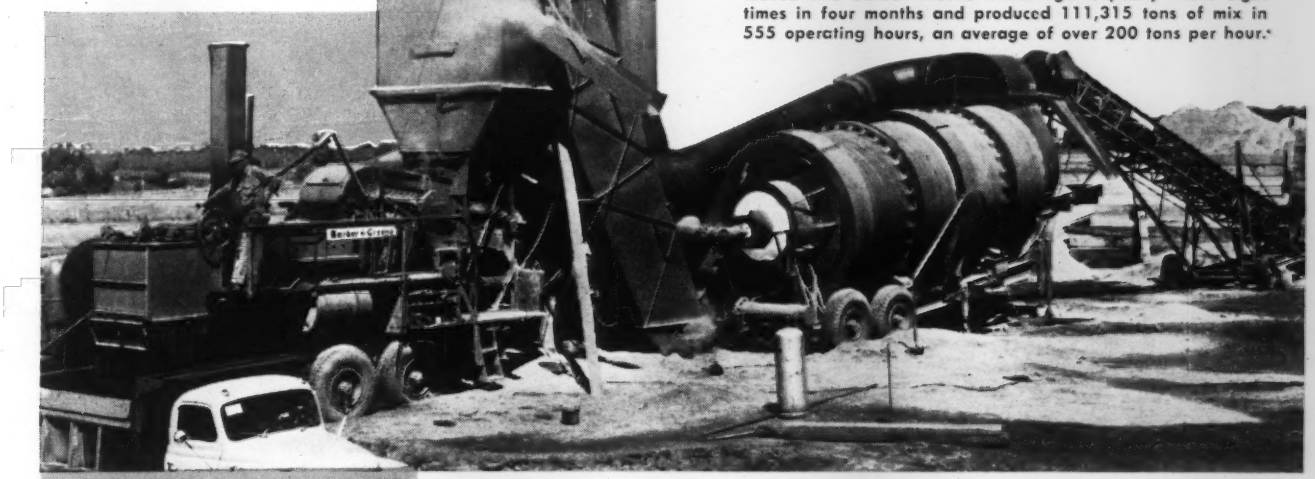
AN IMPRESSION IS WIDESPREAD in this country and abroad that nuclear power soon will take its place along with steam and hydro power as a commercial product. That impression is incorrect and its continued acceptance could serve as a check on sound planning for meeting the power needs of the years immediately ahead. Also, pressure on the government and the electric utilities to speed the day when nuclear energy is commercially available could have the effect of retarding progress in nuclear power development.

Nuclear power development needs a period of unhurried research in which to explore the possibilities of a wide variety of reactors. The present situation in that field was summed up at Chicago recently by Philip Sporn, president of the American Gas and Electric Corp., when he said: "A crash program in a new field necessarily means excessive costs and it also will tend to make rigid a program which ought to be kept flexible in order ultimately to achieve sound design. This is simply another way of saying that reactors today are not where we were 50 years ago with the steam turbine. Fifty years ago it was evident that in the immediate future the prime mover was going to be the steam turbine and not the reciprocating engine. Today we do not know which reactor designs will prove best. We need to try out a number of the most promising types."

That trying out will take time and money. The government is putting up part of the money but the utilities are supplying the major share. The amount they contribute, obviously, must not be enough to check their normal growth; and if they guess wrong the first time, they must be able to provide funds needed for a new try, if real progress is to be made.

The time required for this research might be more than ten years. Meanwhile, the nation's expanding power needs can be met by new and possibly improved steam and hydro plants, which still will be needed despite any foreseeable developments in the field of atomic power.

PRODUCE



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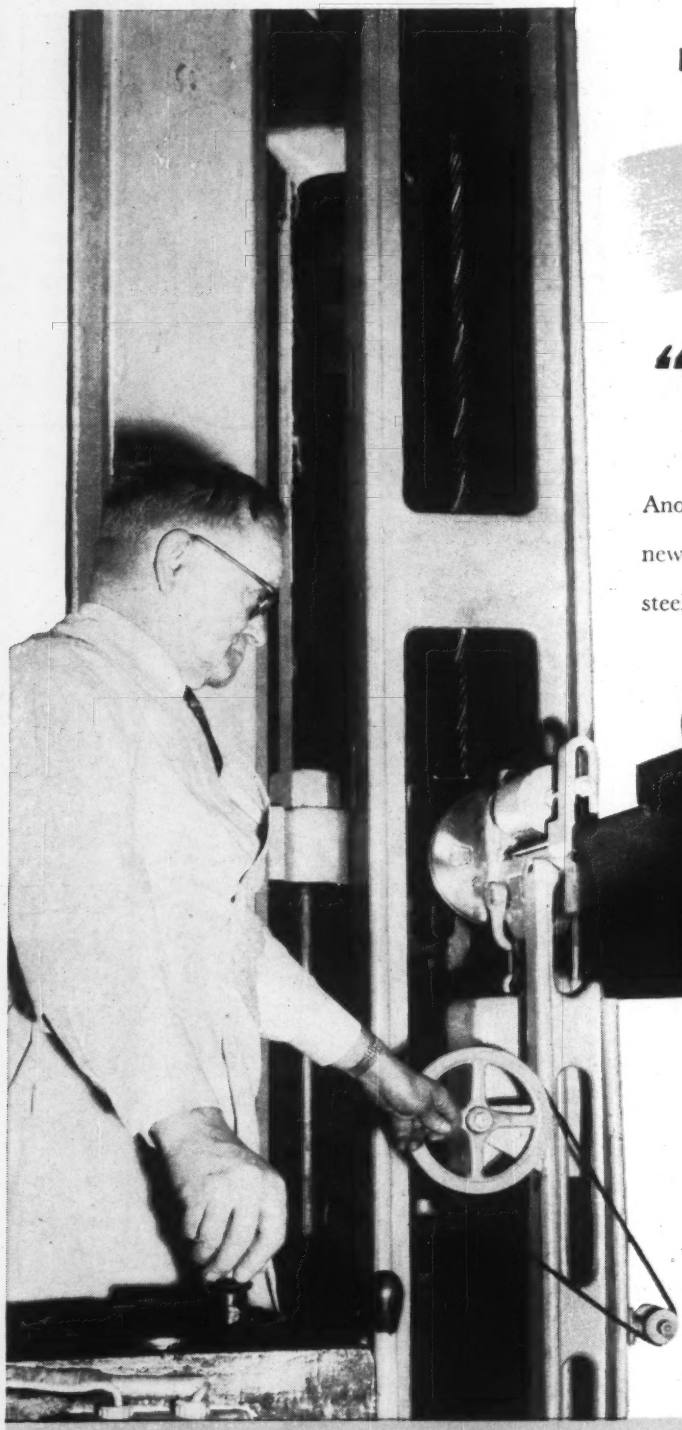

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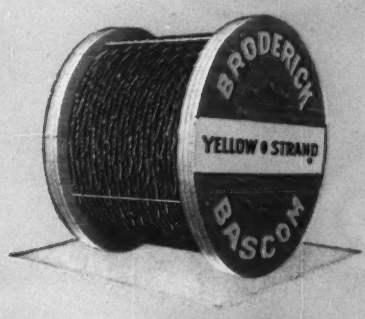
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